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### COGENERATION TECHNOLOGY ALTERNATIVES STUDY (CTAS) UNITED TECHNOLOGIES CORPORATION FINAL REPORT

**VOLUME VI - COMPUTER DATA** 

Power Systems Division
United Technologies Corporation

January 1980

Propared for

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Lewis Research Center
Under Contract DEN3-30

for
U.S. DEPARTMENT OF ENERGY
Energy Technology
Fossil Fuel Utilization Division



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#### COGENERATION TECHNOLOGY ALTERNATIVES STUDY

FINAL REPORT

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FCR-1333

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Volume VI Computer Data

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National Aeronautics and Space Administration Lewis Research Center 21000 Brookpark Road Cleveland, Ohio 44135

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16	Abstract				
	among the high energy consuming industries' cogenerator with each industrial plant. Fuel corresponding traditional values. Various cog by-product heat) applications were included.  The advanced energy conversion technologies of 10 to 25 percent were predicted compared requirements, each advanced technology had emission reductions. Gas turbines and combi produced high estimated returns. In some apfuels, or coal with advanced fluid bed combinations with the presents data in the form of comindustrial process combinations.	consumption, costs, and en- peneration strategies were an indicated reduced fuel con- to traditional on-site furnal attractive applications. Over ned cycles indicated high of plications, diesels were mos- stion or on-site gasification.	ironmental intrusion were e alyzed and both topping an sumption, costs, and emission as and utility electricity. We rall, fluel cells indicated the rerall annual cost savings. Si efficient. The advanced to systems.	evaluated and compared d bottoming (using ind ons. Typically fuel ene- lith the variety of indu- greatest fuel energy sate team turbines and gas chnologies used coal-di-	to ustrial  'gy savings strial  inings and urbi-es
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#### VOLUME VI

#### PREFACE

The Cogeneration Technology Alternatives Study (CTAS) was performed by the National Aeronautics and Space Administration, Lewis Research Center, for the Department of Energy, Division of Fossil Fuel Utilization. CTAS was aimed at providing information which will assist the Department of Energy in establishing research and development funding priorities and emphasis in the area of advanced energy conversion system technology for advanced industrial cogeneration applications. CTAS included two Department of Energy-sponsored/National Aeronautics and Space Administration-contracted studies conducted in parallel by industrial teams along with analyses and evaluations by the National Aeronautics and Space Administration's Lewis Research Center.

This document describes the work conducted by Power Systems Division of United Technologies Corporation under National Aeronautics and Space Administration contract DEN3-30. This United Technologies contractor report is one of a set of reports describing CTAS results. The other reports are the following: Cogeneration Technology Alternatives Study (CTAS) Volume I - Summary NASA TM 81400, Cogeneration Technology Alternatives Study (CTAS) General Electric Final Report NASA CR 159765-159770 and Cogeneration Technology Alternatives Studies (CTAS) Volume II - Comparison and Evaluation of Results, NASA TM 81401.

This United Technologies contractor report for the CTAS study is contained in six volumes:

Volume I Volume II	<ul> <li>Summary Report, DOE/NASA/0030-80/1 NASA CR 159759</li> <li>Industrial Process Characteristics, DOE/NASA/0030-80/2</li> <li>NASA CR 159760</li> </ul>
Volume II	- Energy Conversion System Characteristics, DOE/NASA/ 0030-80/3 NASA CR 159761
Volume IV	<ul> <li>Heat Sources, Balance of Plant, and Auxiliary Systems,         DOE/NASA/0030-80/4 159762</li> </ul>
Volume V	<ul> <li>Analytical Approach and Results, DOE/NASA/0030-80/5 159763</li> </ul>
Volume V	- Computer Data, DOE/NASA/0030-80/6 NASA CR 159764

The results of the computer analysis are summarized in this Volume VI.

#### Introduction

The objective of the Cogeneration Technology Alternatives Study was to provide data for advanced energy conversion systems in industrial cogeneration applications. The potential technical capabilities of energy conversion systems in the 1985 - 2000 time period have been defined with emphasise on systems using coal, coal-derived fuels or alternate fuels. Industrial process data developed for the large energy consuming industries serve as a framework for the cogeneration applications. Groundrules for the study were established and other necessary equipment (balance-of-plant) was defined. This combination of technical information, energy conversion system data, groundrules, industrial process information and balance-of-plant characteristics have been analyzed to evaluate energy consumption, capital and operating costs and emissions. This volume includes a summary of the computer output.

Table VI-1 identifies the current and advanced energy conversion systems which are the subject of this study. The fuels used by each conversion system are also included. Table VI-2 lists the industrial processes included in the study.

#### Summary Data

Table VI-3 presents the General Summary results for the analysis of each energy conversion system applied in each industrial application, depicted in Figure VI-1. In Table VI-3 the energy conversion system is designed to meet all of the electrical energy requirements. Thermal deficiencies are met with an auxiliary furnace and excess thermal energy is wasted. This approach or strategy is denoted "Strategy - Match E" at the top of the appropriate summary pages. The energy conversion system is also identified at the top of the General Summary pages. The results for each industry are tabulated separately and include the following items:

Fuel Energy Savings Ratio\* = Non-Cogeneration Fuel Use\*-Cogeneration Fuel Use

Non-Generation Fuel Use

Total fuel savings - in trillion BTU at the National level assuming the fuel savings per unit process output (BTU/ton) is applicable to all plants in the industry.

Utility fuel savings - in trillion BTU at the National level assuming the utility fuel savings are applicable to all plants in the industry.

Cost Savings Ratio = Non-cogeneration cost-cogeneration cost
Non-cogeneration cost

The Cost Savings Ratio is based on levelized annual costs to the industrialist for all energy services.

Cost Savings - Thousand dollars; the levelized annual cost savings at the National level, assuming the cost savings in the model plant are applicable to all plants in the industry.

Capital Costs - thousand dollars; the incremental cost of the equipment and installation to provide the cogeneration energy conversion system.

Emissions Savings Ratio = Non-cogeneration emissions-Cogeneration emissions
Non-cogeneration emissions

Emissions Savings -Tons per year saved at the plant location.

-Tons per year saved including the utility emissions.

-Total saved.

ECS Size - Megawatts; energy conversion system electrical rating. If an asterisk is used, the powerplant size is smaller than the minimum size defined. However, the data for these cases are included in the summary.

Note that industries numbered 21 and 22, glass containers and cement, are not included in Table VI-3 since they are only considered for bottoming applications.

<sup>\*</sup>Non-cogeneration fuel use includes utility fuel use.

At the bottom of the General Summary are the total fuel, cost and emission savings for all cases (including negative savings), cases which only save fuel, cost saving cases only, cases which save total emissions, cases providing both fuel and cost savings, and finally, all situations with fuel, cost and emission savings. These savings are at the National level assuming the savings in the various model plants (BTU/ton) are applicable to all plants with that type process.

Following the General Summary for each energy conversion system is the National Summary page which presents the fuel, cost and emission savings which potentially could result if the energy conversion system were used throughout industry and achieved savings consistent with the model plants studied.

The National Fuel Savings Summary presents the fuel savings by type for the cogeneration system compared with the non-cogeneration furnaces at the industrial plant and the fuel consumed by the utility to provide the plant electricity. The only fuel attributed to the utility is coal; and the mixture of fuels used by utilities is not included in this summary. Also, the assumption is made that the energy conversion system uses only one fuel. Negative signs signify an increase in the consumption of that type fuel, generally the conversion system fuel.

If the conversion system employs coal-derived fuel, a final national summary is provided assuming coal-derived fuels or coal are available and used in the non-cogeneration cases as well as in the cogeneration system. In these cases, the national saving of petroleum-based fuels is listed as zero (since coal-derived fuel was assumed substituted) and the principal fuel becomes coal. A conversion efficiency from solid coal to coal-derived liquids of 70 percent was used in preparing this summary.

Summary tables are presented for other cogeneration strategies. Table VI-4 presents the General Summary, the National Summary, and the National Fuel Savings Summaries for the strategy where the conversion system is sized to provide the thermal energy required by the industrial process and electricity is imported or exported from or to the utility grid. This strategy is marked "Match T". In Table VI-5 the summary data for the strategy denoted "optimum" is presented. In this strategy the energy conversion system is selected to provide maximum fuel savings for each cogeneration application. The results with energy conversion systems using heat pumps to enhance heat recovery usefulness are summarized in Table VI-6 and labeled "Match Heat Pump".

The glass container and cement industries provide high temperature heat and are candidates for bottoming cogeneration applications where the industrial waste heat is converted to electricity used by the plant or fed to the utility grid. Table VI-7 presents the summary results for the current steam turbine and the advanced organic rankine cycle conversion systems for these bottoming applications.

#### Selected Detail Data

Further detail information was developed for each combination of energy conversion system, industrial process, and cogeneration strategy. This detail information is

presented for the twenty cases listed in Table VI-8 which were selected for detailed review in the course of the program. Table VI-9 presents a six-page computer printout for each of the twenty cases. The industry, the energy conversion system, the matching strategy, the annual plant production and the national production for the industrial process for the year being considered are indicated on the first page.

Page two provides energy consumption for the cogeneration and non-cogeneration cases at the national level assuming energy consumption in the model plant is applicable to all plants producing like products. The selected energy conversion system technology is numerically indicated along with the design option selected (i.e., 13-3 is conversion system 13, design option 3). Fuel utilization by type is given for both non-cogeneration and cogeneration cases. The total fuel consumption is listed at the "site" (plant and utility) and source (coal mine) for coalderived fuels. If a specific industry produces a by-product fuel which can be utilized, the extent of utilization is indicated in the by-product fuel column. The total electric consumption for the industrial process at the national level is presented along with the fuel requirement to produce that electricity. The total fuel energy saved is the difference between the fuel used in the non-cogeneration case (including the utility fuel) and the fuel used in the cogeneration case. The total natural gas and oil saved is defined in the same manner as total fuel saved, except only the oil and gas usage is included.

Page three presents energy utilization ratios and plant level energy data. The fuel energy savings ratio is provided. The ratios U/Uo and F/Uo, and ECS fuel/Uo are the ratios of the utility fuel required (U), the furnace fuel used (F) and the conversion system fuel used to the energy used by the utility to provide electricity to the industrial plant in the non-cogeneration case. In some industries, a specified fuel is necessary for the production of the final product and any such fuel requirement is indicated, relative to the fuel used at the utility in the non-cogeneration cases, as "specified fuel/Uo." The next section of page 3 presents the conversion system design option, size in MWe, and the number of units installed. The electrical efficiency is the electrical output divided by fuel energy input (HHV). The sensible waste heat ratio (A) is defined as the sensible heat available divided by the total heat rejected (exclusive of electricity) by the conversion system.

Two sections follow; the first presents the conversion system available waste heat ratios (R') by thermal category, and the second section presents the recovered waste heat ratio (R) for the specific industrial application.

The total R' is the summation of the individual available waste-heat ratios, excluding hot gas, and represents the maximum available thermal energy as steam and hot water. The recovered waste heat ratio (R) section indicates how much and in which thermal categories the available waste heat was utilized. At the bottom of this page, the parasitic requirements (electrical and thermal) are given along with the coefficient of performance of the heat pump, if utilized.

Page four presents the capital cost accounts for the cogeneration and non-cogeneration plants. These costs are given in 1978 dollars. The cost accounting categories used are as follows:

Cost Category	Category Description
1.0	Fuel/Waste Handling & Storage
2.0	Conversion System Heat Source
3.0	Energy Conversion System
4.0	Thermal Storage
5.0	Supplementary Heat (Furnaces & Boilers)
6.0	Heat Rejection System
7.0	Other Balance-of-Plant Items
8.0	Indirect Costs

These basic cost accounting categories are further subdivided in the printouts. Cogeneration system costs are broken into equipment and installation costs while the non-cogeneration costs are only presented as the total. The cost of borrowing money during the construction period adds to the total indebtedness and is reflected in the capital cost expenditure listed at the bottom of the page.

Page five reports the annual operating costs (in 1978 dollars) and environmental impact of the installation for the typical plant. The operating fuel costs are listed by fuel type for the 1990 start-up year. The cost of any purchased electricity, and systems operation and maintenance are presented in this section. If the cogeneration matching strategy results in the sale of electricity to the grid, the cost credit to the industry appears as a negative number in this category. The next cost section presents the levelized costs over the economic life of the system. The levelized annual cost is comprised of the levelized fixed charges to recover the capital investment and the levelized operating costs.

The cost savings are defined as the cost difference between the non-cogeneration and cogeneration case (non-cogeneration minus cogeneration).

The environmental impact data are presented both at the plant site and at the utility. The pollutant species indicated are sulfur oxides, nitrogen oxides, hydrocarbons, and particulates and are given in tons/year for the typical plant. The emissions savings ratio is based on the summation of emissions at the plant and utility for the cogeneration and non-cogeneration cases. The amount of solid wastes produced (tons/year) by the operation of the non-cogeneration and cogeneration plants is given at the bottom of this page. This value reflects solid wastes from the operation of coal-fired heat sources and waste disposal systems.

Further economic data are presented on the sixth page. The start up year (1990) and base year of cost estimates appear first in the results followed by an indication of the depreciation methodology, the after-tax cost-of-capital, annual fixed charge rate (on invested capital), and the general inflation rate assumed. The subsequent columnar data present specific information about the cogeneration and noncogeneration systems with respect to their capital costs, life-cycle costs, and annularized (levelized) costs. The levelized annual cost savings ratio represents the difference in annularized costs divided by the noncogeneration system costs and is expressed as a decimal value. The data include the cogeneration system payback period and discounted-cash-flow rate-of-return (after taxes). The net present value based on the incremental cash flow differences between the noncogeneration and cogeneration systems is presented. Finally, the major economic input data for this case is noted at the bottom of the page.

#### **Energy Conversion Systems**

The conversion system characteristics are presented in Table VI-10 for the various design options evaluated in the study. This table includes the size range for the conversion system and the electrical and thermal performance in relation to the higher heating value of the fuel consumed for a nominal rating. The predicted emissions are presented. The capital and operating and maintenance costs are listed. The convertor physical size and installation time are included.

#### Industrial Processes

The energy requirements for each of the industrial processes projected to the year 1985 are given in Table VI-11. A typical or model plant has been postulated for each industrial process and the size of this representative plant and the number of operating days per year are listed. The electrical requirements are listed in terms of consumption and peak demand for both the productive and non-productive days. The thermal requirements are stated in the same terms for each thermal bin. The overall electrical to thermal energy requirement ratio is included. To permit scale up to national levels the projected national annual production is listed along with the share of the 4 digit Standard Industrial Classification represented by the process. Projected fuel use is broken down for the non-cogeneration case.

## TABLE VI-1 ENERGY CONSERVATION SYSTEMS

#### TABLE VI-1

ENERGY CONV	ERSION SYSTEM	MS
Energy Conversion System	Technology	Fuel
TECHNOLOGY - TOPPING AF	PPLICATIONS	
Steam Turbine Steam Turbine Diesel Diesel Gas Turbine Combined Cycle	High Speed Low Speed Direct Direct	Patroleum, Boiler Grade Coal (FGD) Petroleum Distillate Petroleum Boiler Grade Petroleum Distillate Petroleum Distillate
	High Speed Low Speed Low Speed Direct Direct Direct Indirect Closed Cycle Closed Cycle Direct Direct Direct Indirect Low Temp Low Temp High Temp High Temp High Temp	Coal Derived Boiler Grade Coal (AFB) Coal Derived Distillate Coal Derived Boiler Grade Coal (pulverized) Petroleum Boiler Grade Coal Derived Boiler Grade Coal Derived Low BTU Gas Coal (PFB) Coal (AFB) Coal Derived Boiler Grade Coal Derived Boiler Grade Coal (AFB) Petroleum Boiler Grade Coal (PFB) Coal (AFB) Petroleum Boiler Grade Coal (PFB) Coal (AFB) Petroleum Boiler Grade Coal Derived Boiler Coal (PFB) Coal (AFB) Petroleum Distillate Coal Derived Distillate Coal Derived Distillate Coal Gasifier) Coal Derived Boiler Grade Coal (AFB) Coal Derived Boiler Grade
	IG APPLICATIO	•
	Energy Conversion System  TECHNOLOGY - TOPPING AND Steam Turbine Steam Turbine Diesel Diesel Gas Turbine Combined Cycle  ED TECHNOLOGY - TOPPING AND Steam Turbine Diesel Diesel Diesel Diesel Diesel Diesel Diesel Gas Turbine Steam Injection Gas Turbine Steam Injection Gas Turbine Steam Injection Gas Turbine Steam Injection Gas Turbine Combined Cycle Combined Cycle Combined Cycle Combined Cycle Combined Cycle Fuel Cell Stirling Stirling Thermionics Thermionics Compound TECHNOLOGY - BOTTOMING Steam Turbine ED TECHNOLOGY - BOTTOMING	Conversion System Technology  TECHNOLOGY - TOPPING APPLICATIONS  Steam Turbine Diesel Diesel Gas Turbine Combined Cycle Direct  ED TECHNOLOGY - TOPPING APPLICATION  Steam Turbine Steam Turbine Diesel Direct Gas Turbine Cosed Cycle Cosed Cycle Cosed Turbine Steam Injection Gas Turbine Direct Combined Cycle Combined Cycle Combined Cycle Direct Combined Cycle Direct

## TABLE VI-2 INDUSTRIAL PLANTS/PROCESSES

TABLE VI - 2

#### INDUSTRIAL PLANTS/PROCESSES

Stand Indust <u>Classific</u>	rial	
20	Food	

- 1. Meat Packing
- 2. Bakery
- Malt Beverages 3.
- 22 Textiles
- 4. Textile Mill

- 24 Lumber
- 5. Saw Mill

26 Paper

- 6. Newsprint
- 7. Writing Paper
- 8. Corrugated Paper
- 9. Boxboard
- 28 Chemicals
- 10. Chlorine
  - 11. Alumina
  - 12. Low Density Polyethylene
  - 13. High Density Polyethylene
  - 14. Polyvinyl Chloride
- 15. Butadiene Rubber
- 16. Nylon
- 17. Styrene
- 18. Ethylene
- 29 Petroleum
- 19. Refinery
- 30 Rubber
- 20. Tires
- 32 Stone and Glass
- 21. Bottles
- 22. Portland Cement
- 33 Primary Mctals
- 23. Integrated Steel Mill
- 24. Iron Foundry
- 25. Copper
- 37 Transportation Equipment
- Motor Vehicles 26.

# TABLE VI-3 SUMMARY RESULTS MATCH ELECTRIC STRATEGY

01 ENTSSIONS SAVINGS ECS - TONS PER YEAR SIZE NT UTILITY TOTAL (PW)	-30484 51337 20853 4.56	12789 16766 3996 0.17*	-6920 20256 13336 1.38	75793 83274 7481 2.05	79480 98163 18683 0.21*	-69633 96292 26659 73.29	-42626 74301 31675 18.89	-79054 218524 139470 47.01	35985 76864 40879 39.73	-373803 540818 167016 47.46	-31129 34273 3144 17.44	-127686 159056 31371 19.31	48378 57565 9188 9.89	-67007 78782 11775 7.09	2808 4463 1656 1.53	-19354 22168 2813 4.12	-6017 7532 1515 3.51	-9882 16628 6746 2.89	219687 313958 94271 20.21	-48584 59693 11108 7.37	395686 521814 126128104.94	-65720 79390 13670 18.28	-73570 88446 14876 5.88	-79593 100465 20872 10.71	2001664 2820843 819181 -433463 783864 350401 -121959 315644 193685 -121959 315644 193665
*** STRATEGY MATCH-E PITAL EMISSIONS COSI SAVINGS	0.246	0.177	0.257	- 520.0	0.168	0.234	0.279	0.342	0.318	0.257 -3	0.037	0.179 -1	0.128 -	0.112	0.121	0.103	0.015	600.0	0.035 -2	0.119	0.026 -3	0.105	0.109	0.135	1037 T
*** STRA CAPITAL   COSF \$	816300	500191	326834	1186496	3843667	419666	478379	1139832	410757	2516218	242277	888509	11596£	635148	99199	195176	188924	494388	2764438	630332	4787886	204640	824014	626436	25218400 6686014 1877422 0
B.G. SAVINGS POLLARS \$000	-78230	-76579	594	-269547	-423446	-110308	-29435	218950	58054	-547210	-79120	-279027	-119230	-175667	-6118	-54273	-44607	-12170	-358404	-132372	-737836	-157245	-195324	-231006	-3871907 -281667 247298 247298
	-0.201	-0.550	0.001	-0.680	-0.828	-0.253	-0.060	0.117	0.049	-0.221	-0.179	-0.437	-0.425	-0.415	-0.035	-0.509	-0.066	-0.003	-0.024	-0.327	-0.069	-0.282	-0.332	-0.305	
PSIA(EXT), PET. UTILITY COS FUEL SAVINGS RATIO	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	2623 725 297 297 297
SS LEVEL URBINE,615 TOTAL FUEL SAVINSS	2.5	-3.8	4.6	-33.5	-30.4	-17.2	4.1	89.6	18.3	-65.5	-14.6	-47.7	-20.5	-28.6	0.3	٠.6-	1.3	31.2	51.9	-18.0	-133.4	-24.6	-28.2	-26.5	2609 2009 711 0
ARY - PROCE OSY,STEAN T FUEL ENERGY SAVINSS RATIO	0.024	-0.096	0.133	-0.358	-0.270	-0.143	0.037	0.177	0.118	-0.098	-0.132	-0.273	-0.264	-0.249	0.017	-0.310	0.007	0.027	0.013	-0.164	-0.029	-0.159	-0.176	-0.127	
CTAS GENEPAL SURBARY - PROC NO. 1 CURRENT TECHNOLOSY,STEAN FUEL ENERG INDUSTRY SAVINSS RATIO	HO.01 NEAT PACKING	NO.02 BAKING	HO.03 MALT BEVERAGE	HO.04 HOVEN FABRIC MILL	HO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 UPITING PAPER HILL	NO.08 CORRUGATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	NO.11 ALUMINA	NO.12 LOW DENS. POLYETHYL	NO.13 HI DENS, POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STYRENE-BUT. RUB.	NO.16 NYLCH	HO.17 STYRENE	NO.18 ETHYLENE	HO.19 PETROLEUM REFINING	NO.20 TIRES	NO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 COPPER	VE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL 1 COST SAVINGS CASES

	20																								
		1GS  TOTAL		301105	1517135	16929/	742451	0			. !	6	-/87	861	429	0	424	0		-789	861	459	0	459	0
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	CH-E	EMIS TON PLANT	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-6783758	-1704132	-483432	0 612182-	0		COAL 01			<b>\$08/</b>	3865	1484	0	1484	•		7804	3665	1464	0	1484	0
1	*** STRATEGY MATCH-E									BOILER	FUEL	•	>	0	0	0	0	0		0	0	0	0	0	0
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H TECHNI OGY ALTERI HATIONAL SURMARY	1,PET. B.G.	COST S	į	ī					NATIONAL FUEL SAVINGS SUHMARY	FUEL SAVINGS PETROLEUM E BOILER	FUEL		-25018	-16233	-1835	0	-1835	0		-25018	-16233	-1835	0	-1835	0
GENERATIO	PSIACEXT	UTILITY FUEL SAVINGS 10**12 BT		9018	2869	1172	1179	0	NATI	OLEUM ILLAT			425-	-17	0	0	0	0		-425	-17	0	0	٥	•
Ō) -	TURBINE, 615 PSIA(EXT), PET. B.G	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	1	-789	861	459	0 27			NATURAL PETRI GAS DIST	1	;	14654	11830	800	0	003	د		14654	11830	800	0	800	0
	YEAR : 1990 KO. 1 CURRENT TECHHOLOGY,STEAM	CATEGORY		TOTAL ALL	FUEL SAVINGS CASES DALY	COST SAVINGS CASES ONLY	ELISALUNA SAVINGS LASE UNLI	FUEL, COST & EMISSION SAVING		CATEGORY		SITE PLUS UTILITY	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES CHLY	EHISSIOHS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	INCLUDING COAL FUEL CONVERSION	TOTAL ALL	FUEL SAVINGS CAGES ONLY	COST SAVINGS CASES ONLY	EMISSIOMS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

1000 ILLUS I
0.106 16.4 72.5 0.259 -0.172 -115.3 499.1 0.049 -0.173 -19.2 32.0 0.003 -0.346 -60.3 148.6 -0.148
-25.0 53.7 -0 -35.9 73.7 -0 -0.7 4.2 0
-0.049 -9.1 7.0 0.155 -0.002 -1.9 16.2 0.359 -0.025 -102.6 293.3 0.335 -0.218 -23.8 55.8 -0.130 -0.033 -171.0 487.4 -0.026 -0.214 -33.2 74.2 0.047 -0.223 -35.7 82.6 -0.092
725 2623 91 297 -223 1373 0 0 0

	900 -	CHERATION	H TECHNOLO	GY ALTERN	COGENERATION TECHNOLOGY ALTERNATIVES STUDY -					
YEAR : 1990			NATIONAL SURMAPY	SURMAPY						
NO. 2 CURRENT TECHNOLOGY, STEAM TURBINE, 615 PSIA(EXT), COAL	1 TURBINE, 615	PSIA(EXT	, COAL		*** STRATEGY MATCH-E	r MATCH-	ш			07
CATEGORY	TOTAL U FUEL	UTILITY FUEL	C051 S	SAVINGS DOLLARS	CAPITAL COST		EHIS	EMISSIONS SAVINGS	VINGS	
	SAVINGS SAVINGS 10**12 BTU 10**12 BTU	SAVINGS 10**12 BT	-	\$000	\$000		PLANT	UTILITY	TOTAL	
			1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	İ			1	
TOTAL ALL	-2241	9018		20569356	177066784	7	-13736237	9794864	4 -3941362	
FUEL SAVINGS CASES ONLY	359	1172		2566513	18205680	•	-1454142	1246082		
COST SAVINGS CASES ONLY	-887	5732		24943840	99069072	•	-8690375	6277659	,	
EMISSIGNS SAVINGS CASE ONLY	0	0		0	•		0		0	
FUEL & COST SAVINGS CASES	353	1172		2966513	18205680	•	-1454142	1246082	12 -208060	
FUEL, COST & EMISSION SAVING	0	0		0	٥		0		0	
		NATIO	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS SI	UMMARY					
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		FUEL SAVINGS	;	10**12 BTU					
CATEGORY	NATURAL PETI GAS DIS	PETROLEUM DISTILLATE	PETROLEUM E BOILER FUEL	GAS	COAL DERIVED DISTILLATE GOILER FUEL		•	TC OTHER SAVINGS	TOTAL FUEL	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		:	:				;		
SITE PLUS UTILITY			6	•	•					
COLDE TO A COLD COLD COLD COLD COLD COLD COLD COLD	1000	075	2000	۰ د	> <	ĭ	65/67-	7617	1627-	
FUEL DAVINGS CASES URLE	000	<b>&gt;</b> !	25.5	>	-		06.6-	0	929	
COST SAVINGS CASES ONLY	12593	-425	5304	0	<b>o</b> •	00961- 0	800	1440	-687	
EMISSIONS SAVINGS CASE UNLT	0 ;	о ·	0	<b>.</b>	0 (		0	<b>o</b> ;	0	
FUEL & COST SAVINGS CASES	800	0	539	0	0		-990	0	358	
FIEL, COST & EMISSION SAVING	0	•	0	0	0	0	0	0	6	
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14654	-425	6082	0	0	0 -24	-24749	2197	-2241	
FUEL SAVINGS CASES ONLY	800	•	539	0	0		066-	07	359	
COST SAVINGS CASES ONLY	12593	-455	5304	0	0	0 -19800	900	1440	-887	
ENISSIONS SAVINGS CASE ONLY	0	0	0	0	0	0	•	0	•	
FUEL & COST SAVINGS CASES	800	0	539	0	0	0	066-	2	358	
FUEL, COST & EMISSICH SAVING	0	0	0	0	0	0	0	0	0	

;	6	ECS	SIZE
		EMISSIONS SAVINGS	TOPIC DED YEAR
	ų		1
	*** STRATEGY MATCH-E	CAPITAL ENISSIONS	
	*** STR	CAPITAL	1000
		COST SAVINGS	
	IST.	COST	
	L'HIGH SPEED, PETROLEUM DIST.	TOTAL UTILITY	
SS LEVEL	GH SPEE	TOTAL	
- PROCESS	DIESELIHI	FIJET FREEGY	
IL SUITIAPY	TECHNOLOGY.	FIJE	
CTAS GEHERAL SUITIAPY - PROCES	NO. 3 CUSPENT TECHNOLOGY, DIESEL,		
	2	:	

ECS SIZE (PW)	17 1.43	3 0.16*	7 1.32	0 1.28	73 0.20*	00.0 5	00.00	00.00	00.00	55 0.00	30 0.00	65 0.00	35 1.55	55 1.48	1.47	96 1.55	72 1.35	39 1.56	45 0.00	43 1.55	82 0.00	44 0.00	08 1.58	00.00 16	28 20 39
INGS  TOTAL	-34937	-1362	-17367	-69910	-8037	114165	113392	407564	128618	98849	84630	175345	-48435	-66365	-3861	-18596	-877	-3623	271074	-5054	4864582	12984	-75108	154091	9038307 -523328 0 9531839
EMISSIONS SAVINGS TOMS PER YEAR UTILITY TO	51337	16786	20256	83275	98163	96292	74301	218524	76864	540819	34273	159056	57565	78782	1955	22168	7532	16628	313959	59695	521814	79390	88446	100465	2820845 605093 2215757
EMIS TONS PLANT	-86274	-30409	-37623	-153185	-178536	17873	16061	189040	51753	108046	50357	16289	-106000	-145146	. 8324	0764	-16304	-52867	2396786	-109935	4342768	50453	-163555	53626	6187160 -1128921 0 7316082
ENISSIONS SAVINGS RATIO	-0.412	-0.602	-0.334	-0.695	-0.723	0.000	0.000	0.000	0.000	000.0	0.000	000.0	-0.674	-0.633	-0.281	-0.679	-0.087	-0.051	0.000	-0.537	0.000	000.0	-0.548	0.000	
CAPITAL ECOST \$	549275	135663	196479	582630	1559535	٥	0	•	0	•	•	0	336872	4,5375	39598	123534	174594	739397	O	492304	0	•	596747	0	6001997
SAVINGS DOLLARS \$000	-23227	-28404	-24104	-85644	69556-	0	0	0	•	•	•	•	-52199	-72028	-4723	<b>76161-</b>	-51369	-112781	•	-64012	0	•	-86710	0	-718964 -718964 -71896
COST RATIO	-0.060	-0.199	-0.091	-0.216	-0.185	0.000	0.000	000.0	0.000	0.000	0.000	000.0	-0.186	-0.170	-0.065	-0.180	-0.076	-0.028	0000	-0.153	0.000	0.000	-0.147	0.000	
UTILITY FUEL SAVINSS	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	437.4	74.2	82.6	93.8	2623 566 5057 2057
TOTAL FUEL AVINSS	26.8	5.4	0.9	22.7	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.7	21.7	1.5	6.0	1.6	21.9	0.0	16.7	0.0	0.0	24.7	0.0	199
FUEL ENEPGY SAVINGS RATIO S	0.255	0.135	0.085	0.210	0.255	0.000	0.00	0.000	0.000	0.000	0.000	0.000	0.205	0.188	0.077	0.209	0.009	0.019	0.000	0.153	0.000	0.000	0.154	0.000	<b>&gt;</b> -
FU	NO.01 HEAT PACKING	NO.02 BAKING	NO.03 HALT BEVERAGE	NO.04 WOVEN FABRIC MILL	NO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 LRITING PAPER MILL	NO.08 CORRUGATED PAPER	NO.09 BOX BOARD	F.O. 10 CHLORINE	NO.11 ALUMINA	HO.12 LOW DENS. POLYETHYL	10.13 HI DENS. POLYETHYL	HO.14 POLYVINYL CHLORIDE	NO.15 STYRENE-BUT. RUB.	MO.16 NYLON	NO.17 STYRENE	NO.18 ETHYLENE	HO.19 PETROLEUM REFININS	NO.20 TIRES	NO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 COPPER	VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES

- COSEMERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUBBRY

	07										
		HGS TOTAL	22231056 -1618226 0	23849280	! הי	636 636	<b>0</b> 0 <b>0</b>	. 0	636 636	0 6	<b>.</b>
		EMISSICHS SAVINGS TONS PER YEAR PLANT UTILITY TO	9794866 1740226	0054646	TOTAL OTHER FUEL SAVINGS	2197	2075	. 0	2197	0 0	1 6
	H-E	EHIS:	12436191	15794644 0 0	COAL OTI FUEL SA	15579		• •	15579		
	*** STRATEGY MATCH-E		1		ILER UEL	• •	000		00	00	
	*** STR/	CAPITAL COST \$000	18757776 18757776 0	000	VED .	00	000	•	00	0 6	<b>.</b>
SUGITARI			-2516783 -2516783 0	000	HATIONAL FUEL SAVINGS SURMARY FUEL SAVINGS 10**12 BT UM PETPOLEUM COAL DERI ATE FOILER GAS DISTILL FUEL	• •	000	0	90	o c	
MALITOMAN SOMETAN	DIST.	5 1500	1		FUEL SAVINGS FUEL SAVINGS PETPOLEUTI E POTLER FUEL	-3397	3693	•	-3397	0 1891	) C
	, PE TROLEUN	UTILITY FUEL SAVINGS 10**12 BTU	9018	7387	91E 11.	-1575 -1575	000	0	-1575	6 6	, c
	L,HIGH SPEED	OTAL VEL IHSS 12 BTU	6.36 6.36 0.36	000	HATUPAL PETP GAS DIST	14711	7170	0	14711	0 0217	
	NO. 3 CUPFENT TECHNOLOSY, DIESEL, HIGH SPEED, PETROLEUN DIST.		סטור. סטור.	CASE OULY SS CASES IOH SAVING		S 04LY	S CALY CASE CHLY 35 CASES	ION SAVING	JEL LONVERSION 5 CHLY	S ONLY CASE ONLY	35 CASES
2R : 1930	COPPENT	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE OHLY FUEL & COST SAVINGS CASES FUEL,COST & EMISSION SAVING	CATEGORY	SITE PLUS UTILITY TOTAL ALL FUEL SAVINSS CASES ONLY	COST SAVINGS CASES CALY EMISSIONS SAVINGS CASE CALY FJEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	INCLUDING COAL FOEL CONVERSION TOTAL ALL FUEL SAVINGS CASES CHLY	COST SAVINGS CASES ONLY HISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES

CTAS GEMERAL SUMMIARY CURRENT TECHNOLOGY, BUSTRY SA	nce EL, 567 S	٥	, PETROLEUM UTILITY FUEL	OILER COST	GRADE SAVIHGS DOLLARS	*** STRA CAPITAL COST	*** STRATEGY HATCH-E PITAL EMISSIONS COST SAVINGS -	-	EHISSIONS SAVINGS TONS PER YEAR	INGS	61 655 5126
RATIO 0.229	SAVINGS	-	SAVINGS	RATIO -0-051	\$000	6000	-0.411	PLANT -AA1A7	UTILITY	TOTAL - 34.850	(HE)
0.131			15.7	-0.220	-31451	358714	-0.577	-29645	16786	-13059	0.16#
0.083	'n	5.9	18.9	-0.063	-16697	356390	-0.321	-36939	20256	-16682	1.32*
0.131	14	4.1	77.8	-0.209	-82783	1221693	-0.722	-1556.0	83275	-72545	1.93*
0.285	32	5.0	91.7	-0.222	-113729	3021426	-0.670	-172607	96163	-74446	0.20*
0.244	29	9.3	91.4	0.034	15033	116662	-0.657	-171308	26295	-75016	27.83
9.189	21	1.1	59.1	0.031	15071	728252	-0.498	-130720	74301	-56419	18.09
161.0	*	8.8	205.4	0.070	132296	2145740	-0.371	-369662	218524	-151138	22.75
0.211	32	2.7	72.5	0.077	59055	730028	-0.419	-130749	76864	-53885	25.53
0.234	15 <sub>0</sub>	50.6	1.665	0.014	15347	4680342	-0.659	-968228	540818	-427409	22.57
0.013	~	4.1	32.0	-0.076	-33789	362544	-0.387	-67043	34273	-32770	16.58
0.141	5.	4.6	148.6	-0.116	-74073	1417530	-0.793	-298899	159056	-139843	18.33
0.136	10	4.0	53.7	-0.095	-26561	568869	-0.693	-107378	57565	-49813	9.36
0.141	16	6.2	73.7	-0.032	-34821	636341	-0.639	-145837	78782	-67055	402.9
9.000	~	1.4	4.2	-0.035	-2566	96+69	-0.271	-8176	4463	-3712	1.47#
0.157	4	4.5	20.7	-0.099	6676-	233760	-0.665	-40938	22168	-18770	3.88*
200.0	-	1.3	7.0	-0.071	50087-	\$15604	-0.086	-16267	7532	-6735	3.39*
0.022	36	6.0	16.2	-0.015	-61373	733195	-0.039	-44741	16620	-28114	3.42#
0.054	221	1.3	293.3	3.005	29216	4698475	-0.092	-563098	313958	-249140	20.16
0.148	91	2.9	55.8	-0.073	-29494	633193	-0.517	-108033	26965	-48341	4.974
0.018	63	3.5	437.4	-0.021	-227657	7422055	-0.050	-909025	521814	-387210	28.53
0.159	2,	54.6	74.2	.0.0.	-9725	796134	-0.490	-143051	79390	-63660	17.35
0.149	23	3.9	82.6	-0.050	-29204	1039128	-0.528	-160761	88446	-72315	5.56*
0.128	92	9.92	93.8	-0.105	-79385	1365959	-0.532	-182482	100465	-62017	10.14
		558 558 0	2623 1221 1221 1221		00~ ~	35651872 35651872 13782749 13782749	i	-5047765 -5047765 -2333764 -2333764	2820843 2820843 1320757 1320757	-2226937 -2226937 -1013006 -1013006	

	07																
		жs  тотац	-7838602 -7838602	-4230046 -4230046 0		TAL FUEL	3039	3039	0	2055 0		3039	3039	2055	0	2055	•
		EMISSICHS SAVINGS TONS PER YEAR PLANT UTILITY I	9794864	5560607 0 5560607		\$ 10	2197	2197	•	1309 0		2197	2197	1309		1309	•
		EMISS)	3472	-9790661 0 -9790661													
	TCH-E	E PLANT	-17633472	66-		COAL FUEL	7804	7804		6274 0		7804	7004	6274	•	6274	-
	VTEGY HA					-	۰	0 0	•	<b>9</b>		0	0	0	•	0	0
CCCENEPATION TECHNOLOG: ALTERNATIVES STUDY NATIONAL SUMMARY	*** STRATEGY MATCH-E	CAPITAL COST \$600	112776160	53996016 63996016	UPPIARY	10**12 BTU	•	• •	0	0 0	,	0	0	•	•	0	•
TECHNOLOGI ALTERN NAITONAL SUMMARY	ADE	54V1NG5 DOLLARS \$000	-1624199	1303632	SAVINGS S	64S CO	G	• •	0	0 0	•	o (	0	0	0	0	0
N TECHNOLO NATIONAL	EOILER GR	C057	1		HATIONAL FUEL SAVINGS SUFFIARY	FUEL SAVINGS PETROLEUM E GOLLER FUEL	-21190	-21190	0	-10556	;	-21190	-21190	-10556	0	-10556	0
CENEPATIO	PETROLEUM	UTILITY FUEL SAVINGS 10**12 BT	9010	505 5057	IMI	PETROLEUM DISTILLATE	-425	507	0	00		6 L	525-	0	0	0	6
23 -	SEL, LOW SPEED,	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	3039	2055		HATUPAL PETROLEUM PETROLEUM GAS DISTILLATE GOILER FUEL	14654	14654	0	5027		\$1.05 H	14054	5027	0	5027	•
	TEAR : 1990 1.O. 4 CUTRENT TECHNOLOGY,DIESEL, LOW SPEED, PETROLEUM BOILER GNADE	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY	LOST SAVINGS LASES UNLY ENISSIGNS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING		CATEGORY	SITE PLUS UTILITY TOTAL ALL	FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING		IDIAL ALL	FUEL SAVINGS CASES OFF	COST SAVINGS CASES THLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

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01 ECS S12E (PL)	4.27	5 0.16*	6 1.28	5 1.90	2 0.19	0 68.60	7 17.83	7 45.12	5 37.95	6 44.55	9 16.30	7 18.14	1 9.21	1 6.58	8 1.40	2 3.83	7 3.33	4 4.71	7 21.34	2 6.84	4 98.23	2 17.20	9 5.45	9.8	्रक्त क्ष् <del>र</del> क
HGS  TOTAL	46489	13615	23116	57375	58912	70330	47007	193937	68495	424806	24749	102317	4552	67041	5018	16592	4887	7564	365697	53072	393484	57632	7616	88346	
EHISSIGHS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	23256	63274	96163	26296	74301	218524	76864	540818	34273	159056	57565	78792	4463	22168	7532	16628	313958	59693	521614	79390	92799	100465	41000
LANT	-484	-3171	2660	-25900	-39251	-25961	-72%	-24587	-8369	-116012	-9525	-56739	-12044	-11741	554	-5476	-2645	<del>5906-</del>	\$1739	-6621	-128330	-21758	-10257	-11519	មើម្រាស់
*** STRATEGY HATCH-E PITAL EMISSIONS COST SAVINGS - \$000 RATIO P	0.543	0.602	5,4.0	0.571	0.530	0.616	0.591	0.476	0.533	0.655	0.292	0.584	0.633	0.639	0.366	609.0	0.048	0.011	0.135	0.507	0.081	777.0	0.571	775.0	1
CAPITAL COST \$000	414569	201550	176927	441606	2255984	214490	323763	1046691	356280	1176189	153099	367137	159391	257520	33876	73101	164750	940015	3923418	300005	3517163	228955	375634	461768	17569168 17569168 8394069 4154221 8394266
M DIST SAVINGS DOLLARS \$000	119	-30801	-15903	-89280	-247495	-24368	36383	93984	34157	106375	-16625	-129692	724	24547	-3409	-7846	-55269	-205977	-423297	18154	344445	-33529	27950	4208	-595611 -595611 -595611 -595611 -595610 -691802 -691802
PETROLEUM DIST COST SAVINS DOLLA RATIO \$000	0.005	-0.216	-0.076	-0.225	+67.0-	-0.057	9.00	0.050	0.059	0.043	-0.036	-0.203	0.003	0.058	-0.047	-0.074	-0.081	-0.051	-0.029	0.045	0.032	-0.040	0.048	900.0	
CT FIPCD, UTILITY FUEL SAVINGS	43.0	15.7	18.9	17.8	91.7	41.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	4.7.4	74.2	82.6	93.8	2623 2623 1731 316 1731
ESS LEVEL PBINE, DIRE Y TOTAL P FUEL SAVINGS	26.7	5.8	11.2	13.2	1.2	25.3	32.6	111.6	39.3	198.1	9.1	19.1	20.4	35.5	5.6	6.2	1.8	12.0	263.6	29.7	203.9	21.9	43.9	50.0	2011
JARY - PRCCES OGY,6AS TUFE FUEL ENERSY SAVINGS RATIO	0.255	0.144	0.157	0.123	0.011	0.211	0.292	0.221	0.254	9.2%	9.030	0.110	0.267	0.308	0.138	0.213	0.010	0.010	0.065	0.271	5.0.0	0.141	0.274	0.239	,
CTAS GENERAL SUMMARY - PROCESS LEVEL NO. 5 CUPFENT TECHNOLOGY,6AS TUPBINE, DIRECT FIPED, FUEL ENERSY TOTAL UTILITY SAVINGS FUEL FUEL RATIO SAVINGS SAVINGS	NO.01 REAT PACKING	HO.02 BAKING	NO.03 HALT BEVERAGE	MO.04 LOVEN FACRIC MILL	NO.05 SAW MILL	NO.05 NEWSPPINT MILL	NO. 07 WRITING PAPER HILL	NO.03 COPRUGATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	NO.11 ALUMINA	NO.12 LOW DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLC9IDE	NO.15 STYPENE-BUT. RUG.	NO.16 NYLON	NO.17 STIPENE	NO. 18 ETHYLENE	NO. 19 PETFOLEUM REFINING	HO.20 TIRES	NO.23 INTEGRATED STEEL	HO.24 GRAY IRON FOUNDRY	MO.25 COPPER	HOTCR VEHICLE	FUEL SAVINGS CASES CHLY COST SAVINGS CASES CHLY EMISSIONS SAVINGS CASE CHLY FUEL & COST SAVINGS CASE CHLY FUEL & COST SAVINGS CASES FUEL COST & EMISSION SAVING

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- COSENEPATION TECHNOLOGY ALTERNATIVES STUDY -

TOTAL UTILIFUE SAVING S		COST SAVINGS DOLLARS	CAPITAL		ı	EMISSIONS SAVINGS	1
3316 9 2513 5 25					PLANT		547 INSS EAR IY TOTAL
2518 5 540 2518 5 540 0 1410 24 109 14654 -109 14654 -109 14654 -109 1665 1669 1669 1669 1669 1669 1669 166	80100 80100	2357048	53483695		-1855516	9794666	96 7935250 66 7935250
2516 5 2516 5 0 1516 5 14654 -109 14654 -109 1525 -51 16654 -109 16654 -109 16654 -109 16654 -109 16654 -109 16654 -109	0105	2196303	25145136		-935487	-	•
2516 5 0 0 1410-11-11-11-11-11-11-11-11-11-11-11-11-1	619	-666160	6024309		107360		
14654 -109 14654 -109 14654 -109 15025 -51 3026 -51 3026 -51 3026 -51	6925	2196303	25145136		-935487	5310599	199 4875114
HATUPAL PETPOLE  GAS DISTILL  GAS DISTILL  14654 - 109  14654 - 109  14654 - 109  14654 - 109  14654 - 109							
HATUPAL GAS GAS 14654 14654 14654 14654 5006		UT8 51**01 SSMD	*12 BTU		!		
14654 - 14654 - 3025 3327 3626 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FOLEUN PETPOLEUN TILLATE FOILER FUEL	GAS	്ളജ്	BOILER FUEL	COAL FUEL	OTHER SAVINGS	FUEL
14654 - 14654 - 3020 3367 3628 0000 0000 0000 0000 0000 0000 0000 0							
14654 - 3026 3026 3026 3026 0 810H 14654 - 3026		-9927 0	0	0	7804	2197	3816
3025 3026 3026 0 5104 14654 -	-10011 -9	0 2366-	0	0	7804	2197	3916
3526 3626 5104 14654 -	-5165	0 101	ပ	0	3480	713	2518
3026 0 0 5104 14654 - 14654 - 5026	-1:04	0 60/4-	0	0	1015	1331	540
510H 14654 - 14654 - 5026	-5105	707	•	0	0840	713	2518
Hee54 - 14654 - 5026 - 5026	0	<b>6</b>	0	•	0	•	0
- 4000 - 4000 - 0000							
14554 - 5006	-10011	- 9527 0	0	0	7804	2197	3816
3006	5- 11,31-	-6057 0	0	0	7834	2197	3316
	-5105	0 +0+	0	0	3430	713	2518
FULSSIONS SAVINGS CASE ONLY 3037 -160-		-408 ÷	0	0	1015	1331	540
- M			•	0	3480	713	2518
		•		•		•	c

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01 ECS SIZE L (MA)	36728 4.33*	2174 0.16*	14175 1.32*	59823 1.92*	73826 0.20*	70045 69.56	53286 18.12	640 45.83	54312 38.55	410847 45.01	18882 16.55	114342 18.25	41254 9.32*	56360 6.67*	3069 1.47*	15933 3.87*	1743 3.40*	-5407 4.79*	227966 21.94	45659 6.95*	361079 99.46	63689 17.30	62692 5.54*	71547 10.12	014859 014859 474736 474736 0
INGS	36	12	14	56	23	70	53	153640	54	410	1.8	114	1.4	56	m	15	-	Ş	227	45	361	63	79	71	2014859 2014859 2014859 474736 674736
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83274	98163	96292	74301	218524	76864	540818	34273	159056	57565	78782	6463	22168	7532	16628	313958	59693	521814	79390	83446	100465	2820843 2820843 620209 620209
LANT	-14610	-4612	-6091	-23451	-24337	-26247	-21015	-64884	-22553	-129972	-15392	-44714	-16311	-22422	-1394	-6235	-5789	-22034	-85992	-17033	-160735	-15501	-25755	-28918	47
*** STRATEGY HATCH-E PITAL EHISSIONS COST SAVINGS - \$000 RATIO P	0.433	0.538	0.273	0.595	999.0	9.614	0.470	0.377	0.422	9,633	0.223	0.652	0.574	0.537	0.224	0.581	0.017	-0.008	0 084	0.456	920.0	0.492	0.458	495.0	i
*** STRAC CAPITAL COST \$000	767177	607328	350826	1089703	4670155	353646	425774	1199848	112643	2056371	210916	710312	323706	540224	68765	164364	197372	1044889	4459846	547290	4344411	414831	715894	783650	26471134 26471134 2471201 0 2471201
r. Savings Dollars \$000	<b>560£9</b> -	76269-	-30178	-93166	-346945	-9455	-18741	-52491	-17923	29385	-40056	-41116	-20656	-37243	-5405	-11685	-56096	-206307	-409195	-38306	-31685	10819	-52358	-82667	-1693852 -1693852 -1693852 40204 40204
LEUN DIST COST RATIO	-0.162	-0.485	-0.115	-0.235	-0.678	-0.022	-0.038	-0.028	-0.031	0.012	-0.091	-0.064	-0.074	-0.088	-0.075	-0.110	-0.083	-0.051	-0.028	-0.095	-0.003	0.019	-0.089	-0.139	
IRED, PETROLEUM DIST UTILITY COST FUEL SAVINSS RATIO	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	2623 2623 573 573 573
<u></u>	15.6	5.1	6.2	23.7	32.9	29.1	18.4	62.8	22.0	187.3	2.1	45.0	16.4	22.7	1.5	6.3	0.0	4.1	177.7	17.5	135.0	35.2	25.9	29.3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
JARY - PROCE OGY, CONB. CY FUEL ENERGY SAVINGS RATIO	0.143	0.126	0.087	0.220	0.293	0.242	0.166	0.124	0.142	0.280	0.019	0.258	0.215	0.197	0.079	0.219	0.000	0.004	0.043	0.160	0.030	0.227	0.162	0.141	
CTAS GENERAL SUMMARY - PROCESS LEVEL NO. 6 CUFRENT TECHNOLOGY,COND.CYGLE,DIR. FUEL ENERGY TOTAL INDUSTRY SAVINGS FUEL RATIO SAVINGS	HO.01 HEAT PACKING	HO.02 BAKING	NO.03 MALT BEVERAGE	HO.04 WOVEN FAERIC MILL	NO.05 SAW MILL	HO.06 NEWSPRINT MILL	HO.07 KRITING PAPER MILL	HO.08 CORRUGATED PAPER	KO.09 BOX BOARD	NO.10 CHLCPINE	HO.11 ALUMINA	HO.12 LOW DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	HO.14 POLYVINYL CHLORIDE	NO.15 STYRENE-BUT, RUB.	RO.16 NYLON	NO.17 STYRENE	MO.18 ETHYLENE	NO.19 PETROLEUM REFINING	HO.20 TIRES	NO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 COPPER	>	AVINGS CASES ONLY AVINGS CASES ONLY CHS SAVINGS CASE COST SAVINGS CASE OST & FHISSICH SA

- COGEMERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUNNARY

NO. 6 CURRENT TECHNOLOGY, COMB	3.CYCLE,DIR.FIRED,PETROLEUM DIST	IRED, PETRO	LEUM DIST.		*** STRATEGY NATCH-E	GY MAT	CH-E				07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINSS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT	C05T S	COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	Ş	S  TOTAL	
	1	1 1 1 1 1	;		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1		1	
TOTAL ALL	14:10 c	90.00		-5,454.944	78261086		-2022420	7707070		10000	
FUEL SAVINGS CASES ONLY	2945			-5656296	78243984		-2922629			6872773	
COST SAVINGS CASES ONLY	684			66548	5421525		-322120			1046777	
EMISSIONS SAVINGS CASE ONLY	0	0		•	0					0	
FUEL & COST SAVINGS CASES	685	1265		86848	5421525		-322120	20 1368897		1046777	
FUEL, COST & EMISSION SAVING	0	0		•	0					0	
		NALL	NALIONAL FUEL SAVINGS SUMMARY	SAVINGS SU	HHARY						
	1 1 1	FU	FUEL SAVINGS	16**12 BTU	112 BTU						
CATEGORY	HATURAL PI GAS DI	PETROLEUM DISTILLATE	PETROLEUM BOILER	GAS	:0 - IE B	<b>8</b> .	COAL	ОТНЕВ	TOTAL FUEL		
			FUEL		FUEL		FUEL	SAVINGS			
SITE PLUS UTILITY											
TGTAL ALL	14654	-8252	-13457	0	0	0	7804	2197	2945	r.	
FUEL SAVINGS CASES ONLY	14654	-6252	-13457	0	0	0	7804	2197	2945	S.	
COST SAVINGS CASES ONLY	175	-1097	-165	0	0	0	1498	78	439	6	
ENISSIONS SAVINGS CASE ONLY	0	٥	0	0	0	0	0	0		0	
FUEL & COST SAVINGS CASES	175	-1097	-165	0	0	ບ	1498	78	489	œ.	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0		•	
INCLUDING COAL FUEL CONVERSION											
TOTAL ALL	14654	-8252	-13457	0	0	0	7804	2197	2945	2	
FUEL SAVINGS CASES ONLY	14654	-6252	-13457	J	0	0	7804	2197	2945	វា	
COST SAVINGS CASES ONLY	175	-1097	-165	0	0	0	1498	78	439	6	
EMISSIONS SAVINGS CASE ONLY	0	ũ	0	0	0	0	0	0		0	
FUCL & COST SAVINGS CASES	175	- 1097	-165	0	0	•	1498	7.8	489	0	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0		0	

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01 ECS SIZE (MM)	.62	.17*	04.	.07	.21*	73.80	.08	.72	.27	47.86	. 75	.43	.97	.15	.55	. 16	.55	.93	.79	44.	.81	.43	. 93	.80	
 TAL	18273 4	2963 0	12770 1	3303 2	14036 0	24191 73	32057 19	142560 47	43659 40	147399 47	3572 17	24055 19	6 223 9	8391 7	1387 1	1869 4	901 3	5823 2	120183 20	6051 7	103265105	9822 18	10252 5	15784 10	761219 377632 166238 186233
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83274	98163	96292	74301	218524	76864	540818	54273	159056	57565	78782	4463	22168	7532	16628	313958	59693	521814	79390	88446	100465	2820843 783864 295388 295388 295388
LANT	-33064	-13822	-7486	-79972	-84127	-72101	-42244	-75944	-33206	-393420	-30701	-135001	-50932	-70391	-3076	-20298	-6631	-10805	-193776	-51641	-418550	-69568	-78195	-84681	-2059624 -406231 -109150 -109150
TEGY MATCI ENISSIONS SAVINGS RATIO	0.206	0.127	0.230	0.032	0.125	0.203	0.272	0.332	0.325	0.223	0.041	0.136	060.0	0.078	960.0	0.067	0.008	0.007	0.040	0.083	0.021	0.072	0.072	0.099	ı
*** STRATEGY MATCH-E CAPITAL EHISSIONS COST SAVINGS - \$000 RATIO P	910658	636520	387581	1368188	4736771	408711	611295	1159201	418686	2503425	262733	905225	406602	679605	76630	216086	500454	517530	3060026	670740	4740529	515210	892587	994782	27123520 27123520 1577637 1577637 1577637
ER. B.G. SAVINGS DOLLARS \$000	-83139	-90366	1695-	-265021	-491052	-81326	-1083	278517	65169	-428049	-60388	-243652	960501-	-158383	-6910	-49928	-45396	-13468	-129464	-123683	-619071	-139607	-182933	-213042	-3195560 -3195560 340656 340666
PSIACEXT),COAL DER. B.G TILITY COST SAVING FUEL DOLLA AVINGS RATIO \$000	-0.214	-0.633	-0.018	-0.668	-0.960	-0.137	-0.005	0.148	0.108	-0.173	-0.138	-0.381	-0.374	-0.375	-0.096	-0.468	-0.067	-0.003	-0.009	-0.305	-0.058	-0.250	-0.311	-0.201	•
PSIA(EXT UTILITY FUEL SAVINGS	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	2623 725 278 278 278 0
SS LEVEL JRBINE, 615 TOTAL FUEL SAVINGS	3.7	-3.2	9.8	-32.3	-24.2	-9.5	10.3	106.6	27.9	-33.9	-9.1	-37.6	-16.1	-22.7	4.0	-7.2	1.4	31.5	122.5	-14.5	-102.5	-19.5	-23.0		100 100 100 100 100 100 100 100 100 100
JARY - FROCES OSY,STEAN TU FUEL EMERGY SAVINGS RATIO S	0.036	-0.031	0.137	-0.300	-0.216	-0.079	0.092	0.211	0.180	-0.051	-0.032	-0.216	-0.211	-0.197	0.020	-0.250	0.008	0.627	0.030	-0.133	-0.023	-0.126	-0.144	-0.100	
CTAS GEMERAL SUMMARY - FROCES NO. 7 ADVANCEO TECHNOLOSY,STEAM TU FUEL EMERGY IMDUSTRY SAVINGS RAITO	NO.01 NEAT PACKING	NO.02 BAKING	NO.03 HALT BEVERACE	NO.04 HOVEN FABRIC MILL	NO.05 SAW MILL	HO.06 NEWSPRINT MILL	NO.07 WRITING PAPER MILL	NO.08 CORRUGATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	NO.11 ALUMINA	NO.12 LOW DENS. POLYETHYL	RO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	MO.15 STYRENE-BUT. RUB.	NO.16 NYLON	NO.17 STYRENE	MO.19 ETHYLENE	NO.19 PETROLEUN REFINING	NO.20 TIRES	MO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 COPPER	NO.26 NOTOR VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES GNLY EHISSICAS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL & COST SAVINGS CASES

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	07																
		46S  TOTAL	2633132 1550236 761159 0 761159			23	1202	550	550	0	ļ	-4253	-524	166	0	991	0
		EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	9794864 3221261 1207254 1207254		TOTAL OTHER FUEL SAVINGS	2197	1366	0 0		0			1366	0	0	0	c
		EMISS TONS PLANT	-6961719 -1641031 -446096 -446096		- 1			<b>.</b> 0 c	o •0					•	0	9	0
	TCH-E	1 5	100		COAL	7804	3365	1446	1446		•	-6450	-1691	166		166	
	*** STRATEGY HATCH-E				BOILER FUEL	-30289	-20559	-2151	-2151	0	1	0	0	•	0	0	0
	* *	CAPITAL COST \$000	79726480 265809649 6448849	UMMARY	COAL DERIVED DISTILLATE	0	0	0 0	•	0	•	0	0	0	0	0	0
SULITARI	. B.G.	SAVINSS DOLLARS \$000	-8932344 -665540 1392389 1392389	SAVINGS S	10 CO GAS	0	0	0 6		0	•	0	0	0	0	0	0
NATIONAL SUBBARI	,COAL DER	cost s	1	HATIOHAL FUEL SAVINGS SUMMARY	FUEL SAVINGS PETROLEUN E BOILER FUEL	6032	969t	509	509	0	•	0	0	0	0	0	0
	PSIA(EXT)	UTILITY FUEL SAVIKGS 10**12 BTU	9018 2669 1136 0	HATIC	OLEUM ILLAT	-425	-17	0 (	<b>,</b>	0	•	0	0	0	0	0	0
	1 TURBINE, 615 PSIA(EXT), COAL DER. B.G.	TOTAL (FUEL SAVINGS 10**12 BTU	1202 1202 550 550 550		NATURAL PETR GAS DIST	14654	11850	245	745	0	•	0	0	0	0	0	0
0001	HO. 7 ADVANCED TECHNOLOGY, STEAM	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY FNISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & FNISSION SAVING		CATEGORY	SITE PLUS UTILITY TOTAL ALL	FUEL SAVINGS CASES ONLY	VINGS CASES ONLY	FILESIERS SAVINSS CASE UNLI FUEL & COST SAVINSS CASES	FUEL, COST & ENISSION SAVING	INCLUDING COAL FUEL CONVERSION	TOTAL ALL	FUEL SAVINSS CASES CHLY	COST SAVINGS CASES CMLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	ST & EMISSION SAVING
0 4 11 >	10.	ũ	TOTAL FUEL SAV COST SAV ENISSION FUEL & (		Ü	SITE P TOTAL	FUEL SA	COST SA	FUEL &	FUEL, CO	INCLUD	TOTAL	FUEL SA	COST SA	ENISSIC	FUEL S	FUEL, CO.

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CTAS GENERAL SUBBARY - PRO NO. 8 ADVANCED TECHBOLOGY,STEAN FUEL ENER INDUSTRY SAVINGS	ບຸບ	SS LEVEL JEDINE,61 TOTAL FUEL	S PSIA(EXT),COAL(AFB) UTILITY FUEL  D	),COAL(A) COST	FB) SAVINGS DOLLARS	*4* STR/ CAPITAL COST	*** STRATEGY MATCH-E PITAL EMISSIONS COST SAVINSS		EHISSIONS SAVINGS TONS PER YEAR	165	01 ECS SIZE
PRI DACKTNG	RATIO :	SAVINGS -2.2	SAVIRES	-0.097	5000	5000	RA110	-40107	51337	101AL 11230	47.4
)	-0.165		15.7	-0.613	-87485	609206	٠,	-17093	16786	-307	0.18*
HO.03 MALT BEVERAGE	0.102	7.3	18.9	0.134	35322	742244	0.173	-10667	20256	9589	1,45
RO.04 WOVEN FABRIC MILL	-0.489	-52.7	77.8	-0.562	-222705	2342737	-0.148	+9464	83274	-15189	2.12
	-0.445	6.65-	91.7	-1.312	-671085	7616811	-0.081	-107245	96163	-9082	0.22*
NO.06 NEWSFRINT MILL	-0.053	-6.4	91.6	0.181	76644	608853	3.200	-73005	26295	23286	74.66
MO.07 WRITING PAPER MILL	960.0	10.7	59.1	0.265	129810	759228	0.248	-45033	74301	29268	19.39
NO.08 CORRUGATED PAPER	0.190	96.2	205.4	0.385	722172	1861350	0.292	-93240	218524	125284	48.61
HO.09 BOX 504RD	0.229	35.5	72.5	0.336	222125	657939	0.340	-31098	76864	45767	26.04
HO.10 CHLORINE	-0.030	-20.0	499.1	0.184	455868	3674297	0.212	-400681	540818	140137	48.34
	-0.111	-12.3	32.0	0.053	23626	444675	-0.010	-35170	34273	-897	18.31
HO.12 LOW DENS. POLYETHYL	-0.219	-33.3	149.6	-0.015	-9468	1427573	0.102	-140905	159056	18151	19.72
NO.13 HI DEMS. POLYETHYL	-0.230	-21.4	53.7	-0.060	-16788	674090	0.008	-56983	57565	582	10.16
NO.14 POLYVINYL CHLORIDE	-0.296	-34.1	73.7	-6.091	-38303	1122551	-0.028	-81769	78782	-2987	7.30
KO.15 STYREME-BUT. RUB.	-0.022	<b>4.0-</b>	4.2	0.039	9059	138103	0.033	-3912	1963	552	1.60
	-0.402	-11.6	20.7	-0.241	-25717	360300	-0.081	-24444	22168	-2277	4.26
	0.004	0.8	7.0	0.251	170645	310841	-0.031	-7595	7532	+9-	3.54
KO.18 ETHYLENE	0.008	9.8	16.2	0.380	1541397	1231840	-0.013	-26912	16628	-10284	2.63
NO.19 PETROLEUM REFINING	-0.004	-16.1	293.3	0.363	5347536	5262308	0.003	-105535	313958	9258	20.36
	-0.198	-21.7	55.8	-0.028	-11451	1108044	0.005	-59217	59693	476	7.59
NO.23 INTEGRATED STEEL	-0.019	-86.3	487.4	0.007	74833	5828225	0.020	-422594	521814	99223106.83	16.83
NO.24 GRAY IRON FOUNDRY	-0.145	-22.4	74.2	0.125	15569	845930	0.037	-74391	79390	6665	18.65
	-0.228	-36.6	A2.6	-0.029	-16927	1482005	-0.023	-91674	9558	-3228	90.9
NO.26 MOTOR VEHICLE	-0.133	-27.8	93.8	-0.017	-12716	1604659	0.044	-93421	100465	7044	10.99
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CHLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST SAVINGS CASES		-307 160 160 160 0	2623 379 1661 0 379		1 ∞ → ○ →	22365940 22365940 22365940 5563471	i	-2341149 -214546 -1529832 0 -214546	2620843 2620843 2005111 2005111 414105	479695 199559 475231 199559	

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CTAS GEMERAL SUMMARY - PROCESS LEVEL NO. 9 ADVANCED TECHNOLOGY, DIESEL, HIGH SPEED, COAL DER	Y - PROCE Y,DIESEL,	SS LEVEL HIGH SPEED	, COAL DER.	. DIST.		*** STRA	*** STRATEGY MATCH-E			;	10
FUE INDUSTRY	FUEL ENERGY SAVINGS RATIO	TOTAL FUEL SAVINGS	UTILITY FUEL SAVINGS	COST RATIO	SAVINGS DOLLARS \$000	CAPITAL COST \$000	ENISSIONS SAVINGS RATIO	EHIS	EHISSIONS SAVINGS TONS PER TEAR UTILITY TO	NGS  TOTAL	ECS SIZE (IIM)
NO.01 HEAT PACKING	0.260	27.3	48.0	-0.040	-15427	564773	0.172	-36125	51337	15212	4.30
NO.02 BAKING	5.223	8.9	15.7	-0.084	-11942	127469	0.222	-11626	16786	5160	0.16*
RO.03 MALT BEVERAGE	0.153	10.9	18.9	-0.003	-2155	187302	0.102	-14607	20256	5649	1.31
HO.04 WOVEN FABRIC MILL	0.410	44.2	77.8	0.030	12065	535160	0.254	-57223	83275	26052	1.90
HO.05 SAW MILL	0.423	47.5	7.16	-0.007	-3563	1499446	0.245	-70607	98163	27556	0.20*
NO.06 NEWSPRINT MILL	0.429	51.5	91.4	0.056	24354	523604	0.258	-66335	96292	29956	13.80+
NO.07 WRITING PAPER MILL	0.295	32.9	59.1	0.032	15529	474375	0.189	-52013	74301	22268	11.99*
NO.08 CORRUGATED PAPER	0.223	113.0	205.4	0.016	29598	1527667	0.145	-156399	218524	62125	13.00*
NO.09 BOX BO4RD	0.256	39.7	72.5	0.020	11575	525338	0.165	-54718	76864	22146	14.75
HO.10 CHLORINE	0.476	318.4	499.1	0.108	269200	2664160	0.296	-345357	540318	195462	14.88*
HO.11 ALUHIHA	0.090	10.0	32.0	-0.053	-23651	230651	0.047	-30123	34273	4150	10.95*
NO.12 LCW DENS. POLYETHYL	0.397	69.5	148.6	-0.022	-14335	630318	0.220	-120069	159056	38987	12.09
HO.13 HI DEMS. POLYETHYL	0.399	30.5	53.7	0.051	14445	311634	0.243	-39694	57565	17871	9.24
NO.14 POLYVINYL CHLORIDE	0.364	41.9	73.7	0.044	18778	440954	0.225	-54502	78782	24279	6.62
NO.15 STYRENE-EUT. RUB.	0.133	2.5	4.2	001	69	37890	0.032	-3273	4463	1190	1.45
HO.16 HYLON	90+.0	11.7	20.7	0.061	6475	113617	0.248	-15229	22168	6669	3.84
NO.17 STYRENE	0.009	1.7	7.0	-0.074	96665-	175547	-0.016	-9364	7532	-1832	3.38
HO.18 ETHYLENE	0.010	11.7	16.2	-0.045	-182659	973444	-0.026	-37237	16628	-20609	4.78
NO.19 PETROLEUM REFIMING	0.055	226.2	293.3	-0.023	-345213	4591717	0.019	-258406	313958	55553	14.35
NO.20 TIRES	0.291	31.8	55.8	0.011	4635	459420	0.187	-41485	26965	16208	9.90
NO.23 INTEGRATED STEEL	0.000	0.0	4.784	0.000	0	0	0.000	4342768	521814	4864582	0.00
NO.24 GRAY IRON FOUNDRY	0.335	51.9	74.2	0.073	40528	660925	0.222	-49280	79390	30111	11.47
NO.25 COPPER	0.294	47.1	82.6	0.024	14037	558711	0.185	-62071	95448	26376	5.50
_ '	0.256	53.5	93.8	-0.035	-26638	798458	0.190	-70083	100465	30382	10.04*
· Ö iii >		1284 1234 817 817 817	2623 2135 1370 467 1370		1 C P Q Q	1 3 3 3 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6	•	2686946 -1655819 -997578 -997578 -997578	2820843 2299029 1480577 521614 1480577	5507789 643210 435002 4664582 483002	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

HO. 9 ADVANCED TECHNOLOSY, DIESE	EL, HIGH SPEED, COAL DER. DIST.	COAL DER	. DIST.		.S ***	*** STRATEGY MATCH-E	TCH-E				07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 UTU	UTILITY FUEL SAVINGS 10**12 UTI	\$ 1500	COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	皇	S  TOTAL	
# # # # # # # # # # # # # # # # # # #		1 1 1 1 1 1	1	1	1 1 1 1 1 1 1	:	1 1 1		ŀ		
TOTAL ALL	6095	9018		-926799	67243056	.0	1873202	02 9794864		11668062	
FUEL SAVINGS CASES ONLY	6095	6084		-926799	67243056	. 40	-6451056		•	2343580	
COST SAVINGS CASES ONLY	3350	5790		1689110	36020368	9	-4347506			596966	
EMISSIONS SAVINGS CASE ONLY	0	934		0		•	8324262		•	9324481	
FUEL & COST SAVINGS CASES	3350	5790		1689110	33020368	99	-4347506	Ĭ		1996954	
FUEL, COST & ENISSION SAVING	0	0		•		0				•	
							••				
		NATI	NATIONAL FUEL SAVINGS SURMARY	SAVINGS SI	JITHARY		•				
	1 1 1 1	 FU	FUEL SAVINGS	;	10**12 BTU	*	;				
CATEGORY	NATURAL PE' GAS DIS	PETROLEUM DISTILLATE	PETROLEUN DOILER FUEL	GAS	COAL DERIVED DISTILLATE	 BOILER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL FUEL		
		!	1	1			1	-	1	·	
SITE PLUS UTILITY											
TOTAL ALL	14654	-425	6082	•	-5843	-18946	15579	2197	4609	ō.	
FUEL SAVINGS CASES ONLY	13108	:425	5508	0	-5843	-18946	9581	1545	6095	ŏ	
COST SAVINGS CASES ONLY	1759	-17	1209	0	-4086	-2382	6739	129	3350	0	
ENISSIONS SAVINGS CASE ONLY	1466	0	574	0	•	•	5998	651		•	
FUEL & COST SAVINGS CASES	1758	-17	1209	0	-4066	-2382	6739	621	3350	0	
FUEL, COST & ENISSION SAVING	0	•	0	0	0	0	•	0		•	
INCLUDING COAL FUEL CONVERSION											
TOTAL ALL	1466	0	574	0	0	0	6569	2197	1816	9	
FUEL SAVINGS CASES ONLY	•	0	0	0	0	0	271	1545	1816	9	
COST SAVINGS CASES ONLY	0	•	0	•	0	•	1713	129	1643	ŀ)	
EMISSIONS SAVINGS CASE ONLY	1466	0	574	0	0	0	5993	651		0	
FUEL & COST SAVINGS CASES	•	0	0	0	•	0	1713	129	1843	ιή.	
FUEL, COST & EMISSION SAVING	0	•	0	0	0	0	•	0		0	

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2 2 1 1	ı	-542121 -102381 -627945 -137649 -152658 -173281 -4773598 -2221466	-0.076 -0.438 -0.063 -0.430 -0.451	4567571 859738 7830640 829429 1073636 1414636 37053872 37053872 14296409 0	37727 -15323 -120887 -2070 -8644 -57710 -151970 -151970 -466322 466322	0.003 -0.038 -0.011 -0.004 -0.015	293.3 55.8 487.4 74.2 82.6 93.8 2623 1221 1221	226.3 20.7 123.7 27.6 30.4 34.0 1075 1075 629 629	0.056 0.190 0.027 0.178 0.190	HO.19 PETROLEUM REFINING HO.23 INTEGRATED STEEL HO.24 GRAY IRON FOUNDRY NO.25 COMPER HO.26 HOTOR VEHICLE TOTAL - ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSICYS SAVINGS CASES FUEL & COST SAVINGS CASES
228162 20	313958	-542121	-0.076	4567571		0.003	93	226.3	0.056	1 REFINING
-27266 3.42#	16628	-4384	-0.034	746159	+6009-	-0.015	16.2	26.5	0.023	
-8687 3.39#	7532	-16219	-0.078	220034	55625-	-0.071	7.0	1.4	0.003	
-16834 3.86*	22168	-39002	-0.601	243719	-4352	-0.041	20.7	6.2	0.214	
-3247 1.46#	4463	-7711	-0.224	71572	-1246	-0.017	4.2	1.8	260.0	STYPENE-BUT. RUB.
-60210 6.69*	76782	-138992	-0.558	873690	-16718	-0.040	73.7	22.2	0.192	HO.14 POLYVINYL CHLORIDE
-44893 9.35	57565	-102458	-0.611	595031	-13209	-0.047	53.7	14.8	0.193	HO.13 HI DEMS. POLYETHYL
-126467 18.32	159056	-285524	-0.714	1481600	-36315	-0.057	148.6	36.7	0.210	LOW DENS. POLYETHYL
-29787 16.52	34273	-64061	-0.341	374111	-23315	-0.053	32.0	4.4	0.041	
-376049 22.50	540318	-916867	-0.569	4852021	163920	990.0	499.1	195.7	0.293	
-47674 25.50	76864	-124539	-0.354	758903	54485	0.095	72.5	36.3	0.234	HO.09 BOX BOARD
-136313 22.74	218524	-354837	-0.318	2240015	146673	0.078	205.4	103.4	0.204	NO.08 CORRUGATED PAPER
-48140 18.02	74301	-122441	-0.408	751070	38157	0.078	59.1	26.9	0.242	HO.O7 KRITING PAPER MILL
-64391 27.73	26296	-160683	-0.554	826824	45360	0.104	91.4	38.5	0.320	NO.C6 REWSPRINT MILL
-67605 0.20#	98163	-165768	-0.600	3065711	-105373	-0.206	91.7	35.4	0.315	
-65481 1.93*	83274	-148756	-0.639	1275505	-62029	-0.164	77.8	20.4	0.183	110.04 WOVEN FARRIC MILL
-14551 1.32*	20256	-34807	-0.262	367680	-10869	-0.041	18.9	7.8	0.109	HO.03 MALT BEVERAGE
-11209 0.16*	16786	-27995	-0.481	369405	-26769	-0.187	15.7	6.8	0.170	
-31674 4.30*	51337	-83011	-0.357	1065256	-21373	-0.055	48.0	25.0	0.239	
ENISSICHS SAVINGS ECS TONS PER YEAR SIZE UTILITY TOTAL (PW)	UTILITY	PLANT	RATIO	000\$	\$000			SAVINGS SAVINGS	RATIO	NO.01 MEAT PACKING

- COSENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUBBARY

NO.10 ADVANCED TECHNOLOGY, DIESEL, LOW SPEED, COAL DERIVED BOILER GRD	EL, LOW SPEED,	COAL DERI	VED BOILER	GRO	K## SI	*** STRATEGY HATCH-E	TCH-E				07
CATEGGRY	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINSS 10**12 BTU		COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		E PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	SAVING YEAR ITY	S TOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING	3708 3708 3708 2421 2421	9018 9018 5057 0 5057	;	456446 456446 2504207 2504207	117025744 117025744 55948689 55948689	i ବିବ୍ୟପ୍ତ <b>ପ୍ତ</b>	-16687789 -16687789 -9268029 -9268029	1	1	-6892917 -6892917 -3707419 0	
CATEGORY	MATUPAL PE	NATI FU PETROLEUM DISTILLATE	NATIONAL FUEL SAVINGS SUMMARY FUEL SAVINGS 10**12 BT UM PETROLEUM COAL DERI ATE BOILER GAS DISTILL	SAVINGS SU	U VED ATE	BOILER	 COAL	OTHER	TOTAL FUEL		
	1		FUEL	; ; ;		FUEL	FUEL	SAVINGS		;	
SITE PLUS UTILITY TOTAL ALL	14654	-425	6032	0	•	-26604	7804	2197	33	3708	
FUEL SAVINGS CASES ONLY	14654	-425	2809	0 (	0	-26604	7804	2197	37	3708	
EMISSIONS SAVINGS CASE ONLY	205	0 0	0/82	9 0	04	-13059	6274	1309	52	2421	
FUEL & COST SAVINGS CASES	5027	0	2870	•	• •	-13059	6274	1309	52	2421	
FUEL, COST & ENISSION SAVING	0	0	0	•	0	•	•	•		•	
THELUDING COAL FUEL CONVERSION	,										
TOTAL ALL	<b>o</b> (	0	0	0	0	0	-1186	2197	2	1011	
FUEL SAVINGS CASES ONLY	0	c	0	•	0	9	-1186	2197	2	1011	
COST SAVINGS CASES ONLY	0	0	0	0	0	0	-1101	1369	23	209	
ETTISSIONS SAVINGS CASE ONLY	0	0	0	0	0	0	0	•		•	
FUEL & COST SAVINGS CASES	0	0	0	•	0	0	-1101	1309	2	209	
FUEL, COST & EHISSICH SAVING	0	0	0	•	0	0	•	•		•	

01 ECS SIZE (FG1)	4.30*	0.16*	1.32*	1.92*	0.20*	27.81	18.07	22.73	25.51	22.53	16.57	16.30	9.34	€89.9	1.47*	3.88*	3.38*	3.42#	20.13	<b>4</b> 96.9	28.47	17.33	5.55*	10.13	
 TAL	-35905	-13669	-17523	-73034	-77497	-78576 2	-59047 1	-157421 2	-56160 2	-432844 2	-34787 1	-140900 1	-50114	-67351	-3905	-18843	-9322	-29354	-257136 2	-50669	-345452 2	-66139	-757%	-85616 1	-2237050 -2237050 -2107210 -2107210
ENISSICHS SAYINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83274	98163	36296	74301	218524	76864	540618	34273	159056	57565	78782	4463	87122	7532	16628	313956	59.93	521814	79390	95788	100465	2620843 2620843 2681737 2681737
LANT	-87242	-30455	-37779	-156308	-175660	-174868	-133348	-375945	-133025	-973663	-69061	-299956	-107679	-146132	-8368	-41010	-16954	19655-	-571094	-110361	-867266	-145529	-164242	160901-	-5057901 -5057901 -4736952 -4788952
*** STRATEGY MATCH-E PITAL EMISSIONS COST SAVINGS - \$000 RATIO P	-0.405	-0.587	-0.315	-0.712	-0.683	-0.676	-0.501	-0.367	-0.417	-0.655	-0.398	-0.795	-0.682	-0.624	-0.269	-0.673	-0.033	-0.037	-0.036	-0.520	-0.071	-0.488	-0.532	-0.534	i
*** STRA CAPITAL COST \$000	1270634	433534	438927	1541983	3477824	901866	848330	2414706	826737	5306809	452764	1656150	684128	1019312	99558	292137	238517	790715	5291375	1012054	7986064	941043	1277649	CJ	40793340 40793340 35853596 35853296
SAVINGS DOLLARS \$000	20360	-17752	639	7096	-34103	126437	96513	378531	130591	729901	3022	135385	46266	62227	1151	17103	-40726	-37753	394169	26197	333929	79456	59182	22273	2597346 2597346 2727581 2727681
RIZED) COST RATIO	0.052	-0.124	0.002	0.018	-0.067	0.290	0.197	0.202	0.227	0.294	0.007	0.212	0.165	0.147	0.021	0.160	-0.060	-0.009	0.027	0.070	0.036	0.142	0.101	0.029	
COAL(PULVE UTILIT FUEL SAVIHSS	48.0	15.7	16.9	77.8	91.7	91.4	59.1	505.4	72.5	1.665	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	95.6	93.8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SS LEVEL LOW SPEED, COAL! PULVERIZED) TOTAL UFILITY COST FUEL FUEL SAVINGS SAVINGS RATIO	24.8	5.4	6.0	19.1	33.1	6.62	21.4	93.1	33.1	179.2	9.1	34.2	13.9	50.9	1.5	5.9	1.4	26.2	224.7	16.6	115.7	25.8	24.5	27.8	1 - M O M O O O O O O O O O O O O O O O O
	0.236	0.134	980.0	0.177	952.0	0.249	0.193	0.194	912.0	0.268	0.015	961.0	0.182	0.182	0.077	0.203	0.007	0.022	0.055	0.152	0.026	0.167	0.153	0.133	
CTAS GENERAL SUBMARY - FROCE NO.11 ADVANCED TECHNOLOST,DIESEL, FUEL ENERGY INDUSTRY SAVINES RATIO	NO.01 HEAT PACKING	HO. 02 BAKING	NO.03 HALT BEVERAGE	RO.04 WOVEN FARPIC MILL	KO.05 SAW MILL	NO.06 REUSPRINT HILL	NO.07 WRITING PAPER MILL	HO. CB CCR. USATED PAPER	113.09 BOX 60.40	NO.10 CHLOPINE	NO.11 ALUMINA	HO.12 LOW DEMS. POLYETHYL	HO.13 HI DENS. FOLYETHYL	HO.14 POLYVINYL CHLORIDE	NO.15 STYRENE-BUT. PUB.	RO.16 NYLON	KO.17 STYRENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	HO.20 TIPES	NO.23 INTEGRATED STEEL	HO.24 GPAY IRON FOUNDRY	NO.25 COPPER	VEHICLE	FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSICHS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSICH SAVING

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- COCENERATION TECHNOLOGY ALTERNATIVES STUDY - HATTOHAL SUBBARY

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10 ECS S1ZE (F24)	4.264	0.16*	1.29*	1.91	0.20*	68.75	17.90	44.85	37.72	44.64	16.19	18.17	9.23	6.59	1.41*	3.84	3.35*	4.74#	21.15	6.87	24.66	17.53	5.47	6.9	
165  TOTAL	37303	10939	14631	49844	43350	57584	53627	156411	55293	362090	19405	81097	37952	57440	3248	13733	1969	-4761	236259	43520	367524	50441	63970	73034	
ENISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	63274	98163	26295	10872	213524	76864	619075	34273	159056	57565	78792	4463	22168	7532	16628	313958	59693	521814	06162	83446	100465	332 2
LANT	-14034	-5847	-5325	-36410	-54813	-39708	-20474	-62113	-21571	-178728	-14363	-77959	-19613	-21341	-1216	-8435	-5563	-21389	-77699	-16173	-154591	-28949	-24476	-27431	1007 7
*** STRATEGY MATCH-E PITAL EMISSIONS COST SAVINGS \$000 RATIO P	0.440	934.0	0.267	955.0	0.390	9.504	0.475	0.364	0.430	0.558	0.229	0.462	0.528	0.548	0.257	6.501	6.019	-0.007	0.087	0.465	0.076	0.358	0.467	9.474	i
CAPITAL COST S	368936	197634	157875	426338	2010835	213279	290379	847570	287161	1154792	122831	361168	157030	250478	30678	71039	160562	915207	3451577	296666	3507203	227516	372464	249094	9176
BOILER CRD DST SAVINGS DOLLARS IO \$000	58247	-10160	25768	10999	-105699	74923	106456	324935	115429	630488	21963	37120	61435	113227	6354	17629	-39622	-140589	092562	79318	694435	69530	119060	•	2676171 2676171 2972243 2972243
. 8011 COST TIO	0.150	-0.071	0.098	0.028	-0.207	9.172	0.217	0.173	0.201	0.254	0.050	0.058	0.219	0.268	0.037	0.165	-0.053	-0.035	0.020	0.1%	0.065	0.125	0.203	0.139	
T FIRED, PETR UTILITY FUEL SAVINSS RA	48.0	15.7	18.9	77.8	91.7	4.19	59.1	205.4	72.5	499.1	32.0	146.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	437.4	74.2	32.6	93.8	######################################
SS LEVEL FINE, DIPECT TOTAL U FUEL SAVINGS S	20.7	7.1	12.3	20.1	€ 9.	32.3	33.8	119.2	6.14	236.5	11.0	30.6	24.7	42.6	2.9	8.1	2.2	13.4	278.7	32.7	4.145	33.0	4.04	54.9	1365 1365 1365 1365 1365 1365 1365 1365
CAT - PROCES OCT.GAS TURE FUEL ENSRGY SAVINGS RATIO	0.273	0.177	0.174	0.137	0.079	0.269	9.304	0.236	0.271	0.354	0.099	0.175	0.323	0.370	0.151	0.279	0.012	0.011	0.068	662.0	0.053	0.213	0.302	0.263	
CTAS GENEPAL SCHERY - PROCE HOLLE ADVARCED TECHROLOGISAGAS TUR FUEL ENERGY INDUSTRY SAVINGS RATIO	NO.01 NEAT PACKING	NO.02 PARTHS	HO.03 HALT BEVERAGE	NO.04 WOVEN FABRIC MILL	MO.05 SAU MILL	HO.06 MENSFRIME MILL	NO.07 KPITING PAPER HILL	NO.08 COURUGATED PAPER	NO.09 EOX EOAPD	NO.10 CHLORINE	ED. 11 ALUMINA	MO.12 LOW DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	HO.14 POLYVINYL CHECRIDE	NO.15 STIRENE-BUT, PUB.	ED. 16 HYLON	1:0.17 STYPENE	NO. 19 ETHYLENE	NO.19 PETROLEUM REFINING	PO.20 TIPES	NO.23 INTESPATED STEEL	HOLDY GPAY INON FOUNDRY	NO.25 COPTER	POTOR VEHICLE	TOTAL THE STATES CHEST COST SALES CASES ONLY ELISSIONS SAVINGS CASE ONLY HELL & COST SAVINGS CASES FULL COST & PRISSICA SAVINGS

- COGENEPATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURMARY	OLOGY, GAS TUFBINE, DIRECT FIRED. PETR. BOILER GRO *** STRATEGY MATCH-E	TOTAL UTILITY COST SAVINGS CAPITAL EMISSIONIS SAVINGS FUEL FUEL DOLLARS COST TONS PER YEAR SAVINGS SAVINGS \$000 \$000 PLANT UTILITY TOTAL	4402 9018 6717625 49683744 -3442422 9794866	4100 4100 6018 8010605 40683744 -3440422 9794866 (	• • • • • • • • • • • • • • • • • • • •	4264 6668 10116045 30136576 -3140026 942536		HATIONAL FUEL SAVINGS SUMMIARY  FUEL SAVINGS 10**12 BTU	MATURAL PERFOLEGY COAL DEPLYED GAS DISTILLATE BOILER COAL OTHER FUEL FUEL FUEL SAVINGS		POST	7477 - 1477 - 1750 0 0 0 2340 1470 1470		7672 -425 -12520 0 0	0 0 0 0 6 9:		0 0 0 7604 2197	14054 -425 -15026 0 0 0 0 7604 2197	7672 -425 -12520 0 0	O O O O O O O O	7672 -425 -12520 0 0	
	YEAP : 1990 HO.12 ADVANCED TECHNOLOGY,GAS TUFBIHE,DI	TOTAL FUEL FUEL SAVINGS SAVINGS 10*412 B			EMISSIONS SAVINGS CASE ONLY		FUEL, COST & EMISSION SAVING		CATEGORY GAS	.1TY	TOTAL TANGET OF THE VIEW OF TH	•	DNLY		ູ່ຊຸ	. FUEL CONVERSION	TOTAL ALL 1465	-		סיאר א		

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CTAS GENERAL SUMMARY - PROC NO.13 ADVANCED TECHNOLOGY,GAS TU FUEL ENERG INDUSTRY SAVENGS	ARY - PROCE OGY,GAS TUR! FUEL EMERGY SAVINGS	ESS LEVEL RBIME,DIRE Y TOTAL FUEL	ESS LEVEL RBIME,DIRECT FIRED,COAL DER.BLR GRD Y TOTAL UTILITY COST SAVING FUEL FUEL DELLA	OAL DER.	BLR GRD SAVINGS DOLLARS	*** STRA CAPITAL COST	*** STRATEGY MATCH-E PITAL EMISSIONS COST SAVINGS		EMISSIONS SAVINGS TONS PER YEAR	NGS 1	01 ECS SIZE
	RATIO	SAVINGS	SAVINGS	RATIO	000\$	000\$	RATIO	PLANT	UTILITY	TOTAL	3
NO.01 MEAT PACKING	0.273	28.7	48.0	0.151	56569	365600	0.411	-14928	51337	36409	4.26*
NO.02 BAKING	0.177	7.1	15.7	-0.071	-10099	197039	655.0	-6339	16786	10446	9.16*
NO.03 MALT BEVERAGE	0.174	12.3	18.9	0.098	25831	157250	0.265	-5532	20256	14725	1.29*
NO.04 WOVEN FABRIC MILL	0.187	20.1	77.8	0.029	11371	422702	0.403	+9614-	83275	41311	1.91
HO.05 SAW MILL	0.079	8.8	91.7	-0.206	-105307	2006951	0.338	-60058	98163	38,05	0.20*
HO.06 HEWSPRINT MILL	0.269	32.3	91.4	0.173	75407	208485	9,465	-42382	36296	54010	68.75
HO.07 WRITING PAPER MILL	0.304	33.8	59.1	0.218	106741	56 358	0.443	2214	74301	52161	17.90
HO.08 CORRUGATED PAPER	0.236	119.2	205.4	0.174	325785	839647	0.355	-66222	218524	152301	44.85
HO.09 BOX BOARD	0.271	41.9	72.5	0.201	115710	284393	0.401	-22985	76864	53880	37.72
NO.10 CHLORINE	0.354	236.5	499.1	0.255	632501	1134871	0.523	-194848	540818	345970	49.64
NO.11 ALUMINA	660.0	11.0	32.0	0.050	22094	127532	0.208	-16103	34273	18171	16.19
HO.12 LOW DENS. POLYETHYL	0.175	30.6	148.6	0.059	37714	355284	0.415	-85452	159056	73604	18.17
NO.13 HI DENS. POLYETHYL	0.323	24.7	53.7	0.220	61649	154913	0.493	-21346	57565	36219	9.23
NO.14 POLYVINYL CHLORIDE	0.370	45.6	73.7	0.268	113519	247587	0.516	-23086	78782	55696	6.59
113.15 STYRENE-BUT, RUB.	0.151	2.9	4.2	0.088	6336	30561	0.220	-1267	4463	3196	1.41*
HD.16 HYLON	0.279	6.1	20.7	0.166	17707	70314	0.463	-9193	22168	12974	3.84
RO.17 STYRENE	0.012	2.2	7.0	-0.058	-39593	160273	0.013	-6048	7532	1484	3,35*
HO.13 ETHYLENE	0.011	13.4	16.2	-0.035	-140469	914013	-0.008	-23180	16628	-6552	4.74*
NO.19 PETROLEUM REFINING	0.070	285.4	293.3	0.025	325179	3438409	0.080	-74687	313958	239271	21.14
NO.20 TIRES	0.299	32.7	55.8	0.197	79604	293839	0.433	-17477	59693	42215	6.87
HO.23 INTEGRATED STEEL	0.053	241.4	487.4	0.065	697560	3476268	0.072	-169601	521814	352213	98.42
HO.24 GRAY IRON FOUNDRY	0.213	33.0	74.2	0.125	69363	224217	0.353	-31548	79390	47842	17.23
NO.25 COPPER	0.302	48.4	62.6	0.203	119406	369040	0.435	-26465	99448	61981	5.47
HO.26 HOTOR VEHICLE	0.263	54.9	93.8	0.140	106146	455635	0.442	-29653	100465	70812	66.6
ALL 5S CASES ONLY 5S CASES ONLY SAVINGS CASE OF T SAVINGS CASE		1372 1372 1341 1341 1341			2713241 2713241 3005710 3008710				2620843 2820843 2681737 2681737	1806443 1806443 1764960 1764960	

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- COSENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

YEAR: 1990 HO.13 ADVARIZED TECHNOLUGY,GAS	TURBIME, DIRECT FIRED, COAL DER. BLR GRD	T FIRED,C	OAL CER.BL	R GRD	S ***	*** STRATEGY MATCH-E	CH-E				07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT	COST		CAPITAL COST \$000		EMIS TOP PLANT	EMISSIONS SAVINGS TOMS PER YEAR PLANT UTILITY T	SAVINGS FEAR	NGS TOTAL	
TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES CHLY EHISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EHISSION SAVING	4414 4414 4277 0 4277	9018 9018 8668 8668 8669	}	6806946 8606946 10203511 10203511	49266064 49266064 37737328 37737329	. 448080	-3723540 -3723540 -3404029 -3404029			6071311 6071311 6021318 0 6021318	
		HATI	HATIOHAL FUEL SAVINGS SUMHARY	SAVINGS S	UMBIARY						
CATEGORY	NATURAL PE GAS DI	PETROLEUM DISTILLATE	FUEL SAVINGS PETROLEUM E BOILER FUEL	10 CO GAS	COAL DERIVED COAL DERIVED DISTILLATE DOILER FUEL	BOILER FUEL	COAL	OTHER SAVINGS	TOTAL	1	
SITE PLUS UTILITY TOTAL ALL	14654	-425	6082	0	0	76833-	7804	2197	4414	<b>.</b>	
FUEL SAVINGS CASES ONLY COST SAVINGS CASES GHLY	14654	1425	4067	00	00	-25897	7398	2197	4414	<b>.</b>	
ENISSIONS SAVINOS CASE ONLY FUEL & COST SAVINGS CASES FUEL, CUST & ENISSION SAVING	0 7672 0	-425	4067 0	000	000	0 -16575 0	7398	2140	4277	0,0	
INCLUDING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL & COST SAVINGS	••••	00000	••••	00000	••••	00000	-177 -177 -118 -118 0	2197 2197 2140 0 2140	2020 2020 2022 2022 0	• • • • • • • •	

01 ECS SIZE (MM)	4.26*	.16*	1.30*	1.90*	0.19*	68.68	17.63	44.71	37.54	44.61	16.14	18.16	9.22	6.58	1.43*	3.83*	3.36*	4.75*	1.20	6.80	98.34	17.22	5.43	16.6	
-:- TAL	35231	6695	14263	15283	11484	35663 6	58827 1	155028 4	55994 3	127817 4	18601 1	9898 1	13290	25706	3089	4806	1320	-3545	217929 21	35780	132712 9	15883 1	50973	56262	1097994 699755 891163 0 701978
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83274	98163	26296	74301	218524	76864	540818	34273	139056	57565	78782	£955	22168	7532	16628	313958	59693	521814	79390	95588	100465	2820843 1066741 1758470 1042582
LANT	-16106	-11087	-5993	16629-	-86679	-60629	-15474	-63495	-20870	-413001	-15672	-149158	-44275	-53076	-1374	-17362	-6212	-20170	-96029	-23913	-389102	-63507	-37474	-44203	-1722852 -366936 -867310 -340604
STRATEGY MATCH-E L EMISSIONS - SAVINGS - RATIO P	0.397	0.245	0.257	0.149	0.102	0.307	0.499	0.361	0.416	0.193	0.213	0.056	0.181	0.238	0.213	0.172	0.012	-0.004	0.073	0.367	0.027	0.117	0.358	0.351	
*** STRACAPITAL COST \$	1587587	720967	599617	2077048	5307754	1025335	984540	2753553	760288	5931271	483215	1942039	792493	1197031	113635	357524	276072	1354087	7398368	1177837	8494262	1124236	1493237	1871698	
:IER SAVINGS DOLLARS \$000	30444	-53819	18427	-122706	-390517	51965	163047	572564	207270	49359	54555	-129337	-5190	20806	6054	-8869	-37320	-101513	555399	75108	-190228	-24445	123526	87139	981798 1774656 2035737 0 1913529
DAL GASIFIER COST SAV DO RATIO \$	0.078	-0.377	0.070	-0.309	-0.744	0.119	0.374	0.305	0.360	0.020	0.123	-0.202	-0.018	0.049	0.084	-0.083	-0.055	-0.025	0.038	0.185	-0.018	-0.044	0.210	0.115	
T FIRED,CC UTILITY FUEL SAVINGS	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	2623 989 1630 0 966
S	21.5	-1.3	9.6	-25.1	-38.6	-2.1	36.4	9.66	36.7	-117.3	9.0	-75.2	-13.3	-7.6	2.2	-5.6	1.2	13.9	215.9	17.3	-103.6	-20.1	23.6	23.9	100 510 368 0 495
IARY - PROCE OGY,GAS TUR FUEL ENERGY SAVINGS RATIO	0.205	-0.033	0.134	-0.233	-0.344	-0.018	0.327	0.197	0.237	-0.175	0.072	-0.431	-0.175	-0.066	0.119	-0.195	900.0	0.012	0.053	0.158	-0.023	-0.130	0.147	0.115	
CTAS GENERAL SUMMARY - PROCESS LEVEL HO.14 ADVANCED TECHNOLOGY,GAS TURBINE,DIR FUEL ENERGY TOTAL INDUSTRY SAVINGS FUEL RATIO SAVINGS	NO.01 MEAT PACKING	NO.02 BAKING	HO.03 MALT BEVERAGE	HO.04 HOVEN FABRIC MILL	NO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 KRITING PAPER MILL	NO.08 CORRUGATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	NO.11 ALUMINA	NO.12 LOW DENS. POLYETHYL	HO.13 HI DENS. POLYETHYL	RO.14 POLYVINYL CHLORIDE	HO.15 STYRENE-BUT. RUB.	HO.16 NYLCN	NO.17 STYRENE	MO.18 ETHYLENE	HO. 19 PETROLEUM REFINING	NO.20 TIRES	HO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 COPPER	NO.26 MOTOR VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CHLY EMISSICHS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSICH SAVING

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	900 -	CNERATIO	COGENERATION TECHNOLOGY ALTERNATIVES STUDY HATIONAL SUMMARY	TECHNOLOGY ALTERN HATIONAL SUMMRY	ATIVES STI	JOY -					
YEAR : 1990 NO.14 ADVANCED TECHNOLOGY, GAS	TURPINE, DIRECT FIRED, COAL GASIFIER	FIKED,C	OAL GASIFI	23	(S * * *	*** STRATEGY MATCH-E	TCH-E				07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT	C03T S	SAVINGS DOLLARS \$000	CAPITAL COST \$000		EI PLANT	EMISSIONS SAVINGS TONS PER YEAR LANT UTILITY TO	웆	S  TOTAL	
		!	!	} 1 2 3 6 4 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	!	1 1	
ALL	752	9018		6173944	157104016	91	-5647393			4147460	
FUEL SAVINGS CASES ONLY	1904	3071		7361543	73546432	52	-1354021	-		2725717	
COST SAVINGS CASES CHLY	1464	6376		9229118	97543776	92	-3278372	572 6971336	-	3692959	
ENISSIONS SAVINGS CASE ONLY	c	0		•		0				0	
FUEL & COST SAVINGS CASES	14621	3526		8241675	62939120	0.	-1183391	391 3930555 191		2747176	
OST & EMISSION SAVING	0	0		0		0		0	0	o.	
		HATI	NATIONAL FUEL SAVINGS SUNMARY	SAVINGS	SUNMARY						
	MINISTER OF THE STATE OF THE ST	FL POLETIM	FUEL SAVINGS	; ;	10**12 BTU .		;		TOTAL		
CATEGORY	GAS DIS		EOILER FUEL	}	DISTILLATE	GOILER FUEL	COAL FUEL	OTHER SAVINGS	FUEL		
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				\$ \$ \$ \$ 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
SITE PLUS UTILITY	13450	300	4080	c	c	45934	1269-	2197	752	٥,	
COUNTY OF VIEW OF THE COUNTY	12567	100	5160	· c		15431	-1360	1392	1904	• •	
TOUR SAVINGS CASES ONLY	5587	-425	3419			t629-	-2105	1381	1464		
ENISTONS SAVINGS CASE ONLY	0	0	0	0	0	0	0	0		0	
COST SAVINGS CASES	5599	-425	3159	0	0	+629-	-1103	1361	1797	7	
FUEL, COST & ENISSION SAVING	0	0	0	0	0	0	0	•		0	
THICLUDING COAL FUEL CONVERSION	1	(	ì	ć	ć	c	9 6 7	2101	1	o	
דסדאר אנו	5545	٥,	1356	<b>o</b> (	<b>-</b> (	<b>&gt;</b> (	4400	1417	4 (		
AVINGS CASES ONLY	4	0	434	9	<b>o</b> :	0	7/-	1392	06.27	<b>.</b>	
COST SAVINGS CASES CHLY	226	0	939	0	0	0	-1291	1381	1703	ត្ត (	
ENISSIONS SAVINSS CASE ONLY	0	0	0	0	0	0	0	9		0 -	
FUEL & COST SAVINGS CASES	544	0 (	625	0 (	0 (	0 0	-290	1361	2041	<u>.</u>	
OST & EMISSION SAVING	0	0	9	כי	9	>	5	>		<b>5</b>	

CTAS GENERAL SUMMARY . ADVANCED TECHNOLOGY, EVEL FUEL SA' SA' SA' SA' R' SA' R' R' R' R' R' R' R' R' SA' R'	ARY - PROCESS LEVEL OGY,GAS TURBINE,DIR FUEL EMERGY TOTAL SAVINGS FUEL RATIO SAVINGS	SS LEVEL BINE, DIREC TOTAL FUEL SAVINGS	CTAS GENERAL SUMHARY - PROCESS LEVEL NO.15 ADVANCED TECHNOLOGY,GAS TURBINE,DIRECT FIREU,COAL(PFB) FUEL EHERGY TOTAL UTILITY COST SAVINGS FUEL FUEL RATIO SAVINGS SAVINGS RATIO	OAL(PFB) COST RATIO	SAVINGS DOLLARS \$000	*** STRA CAPITAL COST \$000	*** STRATEGY MATCH-E PITAL ENISSIGNS COST SAVINGS - \$000 RATIO P	LANT	EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	INGS  TOTAL	01 ECS SIZE (MW)
0.216		22.7	48.0	0.045	16484	1497130	0.379	-17694	51337	33643	405.4
0.110		4.4	15.7	-0.195	-27878	524554	0.382	-7879	16786	8907	0.16*
0.130		9.2	18.9	0.190	50151	609258	0.235	-7187	20256	13069	1.31*
0.030		3.3	77.8	-0.137	-54302	1709820	0.304	-52078	83275	31197	1.92*
-0.055		-6.1	91.7	-0.669	-342352	5138497	0.263	-68525	98163	29638	0.20*
0.317		38.0	91.4	0.296	129162	796130	0.513	-36625	96292	59667	69.22
0.312		34.7	59.1	0.313	153120	927730	99.0	-19561	74301	54741	17.86
0.205		163.8	205.4	0.322	605020	2615655	0.344	-70790	218524	147734	42.14
0.237		36.7	72.5	0.310	178554	915620	065.0	-24418	76864	52446	37.98
0.154		102.7	499.1	0.198	491608	4570921	0.393	-281209	540818	259610	44.95
990.0		7.5	32.0	0.136	16009	454714	0.191	-17575	34273	16698	16.32
-0.054		4.6-	148.6	0.006	3721	1516152	0.273	-110676	159056	48381	18.30
0.128		9.8	53.7	0.147	41372	639187	0.364	-30809	57565	26756	9.29
0.183		21.1	73.7	0.186	78594	976042	0.390	-36757	78782	42024	99.9
0.115		13.53	4.2	0.183	13593	113882	0.195	-1634	4463	2830	1.44*
0.065		1.9	20.7	0.055	5835	299151	0.323	-13131	22168	9037	3.87*
0.007		1.2	7.0	0.253	171926	292795	0.009	-6545	7532	986	3.28*
0.007		8.1	16.2	0.368	1493219	1427494	-0.012	-26225	16628	-9598	3.55*
0.051		208.6	293.3	0.362	5341460	7712359	99.00	-119332	313958	194077	21.45
0.213		23.3	55.8	0.183	74002	1069129	0.382	-22510	26965	37183	6.88
0.024		111.0	487.4	0.021	225240	7222593	0.055	-256418	521814	265396	99.10
0.024		3.7	74.2	0.178	99242	959668	0.211	-50839	79390	28552	17.34
202.0		32.3	82.6	0.217	127663	1319073	0.370	-35759	88446	52688	5.49
0.193		40.3	93.8	0.134	101213	1677031	0.393	-37522	100465	62943	10.01
		827 810 810 919 919	2623 2438 2438 2289 0		9036734 9375365 9461266 9457545	44924448 38269372 37551664 36035520		-1352245 -1173044 -1223764 -1113089	2820844 2853624 2622620 0 2463564	4 85 8	

	500 -	ENCRAT 10	H TECHBIOLO HATIORAL	TECHHOLOGY ALTERH HATIOMAL SUMMARY	COSENCRATION TECHNOLOGY ALTERNATIVES STUDY - NATIONIAL SUBBRY	i 1			;
NO.15 ADVANCED TECHNOLOGY, GAS	TURBINE, DIRECT FIRED, COAL (PFB)	FIRED,C	0AL(PFB)		*** STRATEGY MATCH-E	MATCH-E			07
	TOTAL U FUEL SAVINGS S 10**12 BTU 1	UTILITY FUEL SAVINGS 10*+12 BTU	C05T	SAVINSS DOLLARS \$000	CAPITAL COST \$000	PLANT	NISSIONS TONS PER UTILI	SAVINGS YEAR ITY TOTAL	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	,	;	1	1 1 1 1 1 1 1 1				
	,				700000	17.000	7707020 12	7010000	
	0000	9018		355.0300	73074001	70444			
	3039	3101		15306544	441206221	+0+1195-			
	3027	8663		33042640	126267408	-4248997	97 9414908	108 5165901	
	0	0		0	0				
	3074	7921		33024064	118699264	-3696540		4924400	
	o	0		0	0		0	0	
		NATI	NATIONAL FUEL	SAVINGS SUNHARY	UNHARY				
	; ; ; ; ;	Ē.	PHEL SAVINGS	1	10**12 BTU	1			
	NATUPAL PET GAS DIS	FETROLEUM DISTILLATE	PETROLEUN BOILER FUEL	GAS	COAL DERIVED DISTILLATE BOILER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL FUEL	
	1		, 1 1 1 1 1	; ; ; ;		1	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	14654	-475	6082	0	0	-19478	2197	3030	
	14572	រ ប្រ. វ	1500	0		-19280	2171	3059	
	14621	404	6051	0			2167	3027	
		0	5	0			0	0	
	14554	-425	6029	0	0	-1923	2154	3074	
	0	0	0	0			0	0	
INCLUDING COAL FUEL CONVERSION									
	14654	-425	6032	0		-19478	2197	3030	
	14572	-425	6051	0			2171	3089	
	14621	-425	6051	0		-19337	2167	3027	
	0	0	0	0			0	0	
	14554	-405	6023	0	0	-1923	2154	3074	
	0	0	0	0			0	0	

CTAS GENERAL SURTARY - PROCESS LEVEL

2.1.0         46.0         -0.132         -51517         1664169         0.126         -39995           2.13.7         15.7         -0.652         -93166         757970         -0.242         -22430           1         9.3         16.9         0.151         39910         713655         0.202         -9049           2         -76.6         77.6         -0.749         -296966         22269943         0.1867         -116705           4         -105.4         91.7         -1.329         -679621         6349942         -0.456         -116056           4         -43.7         91.4         -0.180         -73552         1093150         0.049         -116060           5         -43.7         91.4         -0.180         -7352         1093176         0.469         -116091           6         -60.4         72.5         0.186         211673         1093176         0.479         -11145           7         -60.4         72.5         0.186         211673         1093176         0.479         -11145           8         -60.4         72.5         0.186         211673         104994         0.1446         111654         11146         -22023         11	HO.16 ADVANCED TECHROLOGY, GAS TURBINE, INDIRECT FIRED, COAL(AFB) FUEL ENERGY TOTAL UTILITY COST S SAVINGS FUEL FUEL RATIO SAVINGS SAVINGS RATIO	FUEL ENERGY SAVINGS RATIO	RGINE, INDIR Y TOTAL FUEL SAVINGS	RECT FIRED UTILITY FUEL SAVINGS	COALLAFI COST RATIO	B) SAVINGS DOLLARS \$000	*** STRA CAPITAL COST \$000	*** STRATEGY MATCH-E PITAL EMISSIONS COST SAVINGS - 5000 RATIO P	LANT :	EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	NGS  TOTAL	O1 ECS SIZE (FIH)
0.131	NO ON HEAT DACKING	810 0-		0 67	6110-	2	1664189	0.12A	å	51337	11362	4.57
1,11,   1,1,1,   1,11,   1,1,   1,1,   1,1,   1,1,   1,1,   1,1,   1,1,   1,	NO 02 BAKTEG	292 0-	-11.	15.7	-0.652	-91186	0.6797	-0.242	-22430	16786	-5645	0.17#
-0.732 -70.0 47.0 -0.749 -296980 2209993 -0.346 -116705 -106970 -0.939 -0.346 -116705 -1054 -1054 -1054 -1054 -1054 -1055 -1054 -1055 -105	NO.03 MALT BEVERAGE	0.131	£.6	18.9	0.151	39910	713855	0.202	6706-	20256	11207	1.39*
0.1364   -0.15.4   91.7   -1.329   -679621   6349942   -0.4560   -146862   -146862   -0.364   -146862   -0.364   -19347   -0.169   -0.169   -0.0443   -43.7   91.4   -0.180   -73352   1093150   -0.046   -100971   -100473   -0.24273   -111465   -0.364   -110473   -0.364   -110467   -0.364   -1266444   -126644   -1266444   -126644   -12664444   -12664444   -12664444   -12664444   -12664444   -12664444   -12664444   -12664444   -12664444   -12664444   -12664444   -12664444   -12664444   -12664444   -12664444   -126644444   -12664444   -126644444   -126644444   -126644444   -1266444444   -1266444444   -126644444444444444444444444444444444444	NO.04 WOVEN FABRIC MILL	-0.732	-78.8	77.8	.74	-296988	2289493	-0.346	-118705	83274	-35430	2.06
0.344   .43.7   91.4   .0.180   .73352   1093150   0.040   .11145   .11445   .11145   .11145   .11145   .11145   .11145   .11145   .11445   .11145   .11445   .11145   .11145   .11145   .11145   .11145   .11145   .11445   .11145   .11445   .11145   .11145   .11145   .11145   .11145   .11145   .11445   .11145   .11145   .11145   .11145   .11145   .11145   .1114	HO.05 SAW MILL	-0.939	-105.4	91.7	1.32	-679821	6349942	-0.450	-148826	98163	-50662	0.21*
0.351   177.3   205.4   0.376   136004   1026776   0.536   -11145   -11445   -11145	MO.06 NEWSPRINT MILL	-0.364	-43.7	91.4	0	-79352	1093150	-0.040	-100971	96292	6295-	73.64
0.354 177.3 205.4 0.339 637162 3560171 0.429 -34273 2 0.370 60.4 72.5 0.368 211873 1093176 0.473 -12604 0.370 60.4 72.5 0.368 211873 1093176 0.473 -12604 0.054 6.0 32.0 0.123 54217 499993 0.144 -21667 -21667 -21667 -21667 -21667 -21667 -21667 -21667 -21634 -21667 -21649992 -21442 -21647 -21667 -2164992 -21442 -21647	NO.07 WRITING PAPER MILL	0.443	49.3	59.1	0.376	184096	1026776	0.536	-11145	74301	63157	18.78
0.390 60.4 72.5 0.368 211873 1093176 0.473 -12604  -0.517 -345.5 499.1 -0.272 -655160 620962 -0.165 -649992 5  0.054 6.0 32.0 0.123 54217 499993 0.144 -21667 7  -0.456 -37.9 53.7 -0.300 -54383 643572 -0.168 -69890	NO.08 CORRUGATED PAPER	0.351	77	205.4	0.339	637162	3580171	0.429	-34273	218524	184250	48.09
0.054   0.165   0.1272   0.1216   0.00902   0.145   0.1467   0.054   0.054   0.1267   0.1267   0.1267   0.054   0.145   0.145   0.1267   0.127   0.1267	NO.09 BOX BOARD	0.390	4.09	72.5	.36	211873	1093176	0.473	-12604	76864	64261	40.04
0.054   0.05   0.123   54217   499993   0.144   -21667   0.0822   0.346   0.220323   0.145   0.1845   0.220323   0.145.4   0.0822   0.143.4   0.0539   0.145.2   0.145.4   0.0539   0.145.2   0.145.4   0.145.4   0.1539   0.144203   0.13682   0.1346   0.0346   0.220323   0.1357   0.115   0.035   0.117   0.154   0.164   0.1154   0.164   0.164   0.164   0.164   0.165   0.164   0.165   0.164   0.165   0.164   0.165   0.164   0.165   0.164   0.165   0.164   0.13540	NO.10 CHLORINE	-0.517	-345.5	499.1	-0.272	-675180	6209962	-0.165	-649992	540819	-1001-	47.83
1.0.0452   -143.4   140.6   -0.539   -344203   2032692   -0.346   -220323   15     -0.496   -37.9   53.7   -0.300   -64393   043572   -0.169   -69990   5     -0.357   -41.1   73.7   -0.194   -01948   1215168   -0.066   -69021   7     -0.569   -16.4   20.7   -0.403   -43002   351090   -0.217   -223251   2     -0.0569   -16.4   20.7   -0.403   -43002   351090   -0.217   -223251   2     -0.0569   -16.4   20.7   -0.403   -43002   351090   -0.217   -223251   2     -0.0569   -16.4   20.7   -0.403   -43002   1561813   -0.006   -226681   1     -0.057   -2.41.7   293.3   0.353   5213228   9441151   0.060   -135404   311     -0.072   -2.41.3   25.8   -0.010   -4123   1192974   0.096   -50145   52     -0.072   -325.6   497.4   -0.111   -1181654   11261301   -0.017   -106049   7     -0.072   -18.5   93.6   -0.016   -57750   202234   0.095   -266434   2664344   2664344   2664344   2664344   2664344   2664344   2664344   2664344   2664344   2664344   2664		0.054	6.0	32.0	0.123	54217	166665	0.144	-21667	34273	12606	17.16
-0.456 -37.9 53.7 -0.300 -64383 643572 -0.168 -69890 68900	NO.12 LOW DENS. POLYETHYL	-0.822	-143.4	148.6	-0.539	-344203	2032892	-0.346	-220323	159056	-61267	19.47
0.117 2.2 4.2 0.164 11854 1215168 -0.086 -88021 7	NO.13 HI DENS. POLYETHYL	955.0-	37.	53.7	-0.300	-64383	843572	-0.168	06869-	57565	-12324	9.89
0.015	NO.14 FOLYVINYL CHLORIDE	-0.357	-41.1	73.7	-0.194	-81948	1215168	-0.086	-68021	78782	-9239	7.06
-0.569         -16.4         20.7         -0.403         -43002         381060         -0.217         -28251           0.008         1.6         7.0         0.251         170671         320071         0.005         -6972           0.015         17.3         16.2         0.369         1498829         1561813         -0.006         -22681           0.059         241.7         293.3         0.353         5213228         9441151         0.006         -135404         3           -0.072         -7.9         55.8         -0.010         -4123         1192974         0.096         -50146         5           -0.072         -325.6         487.4         -0.111         -1181654         11261301         -0.017         -602154         5           -0.0413         -63.9         74.2         -0.142         1186558         -0.197         -106049         5           -0.056         -13.6         0.010         5904         1543497         0.085         -76404         5           -0.059         -13.6         0.010         5904         1543497         0.075         -2665394         555         7094         -255817         7555817         7555817         7555817         755		0.117	2.2	4.2	0.164	11854	132342	0.168	-2022	4463	2445	1.52*
0.006         1.6         7.0         0.251         170671         350071         0.005         -6972           0.015         17.3         16.2         0.369         1496829         1561813         -0.006         -22681           0.059         241.7         293.3         0.353         5213228         9441151         0.006         -135404         3           -0.072         -7.9         55.8         -0.010         -4123         11261301         -0.093         -50145         50145           -0.072         -325.6         487.4         -0.111         -1181654         11261301         -0.093         -50145         50404           -0.036         -13.8         74.2         -0.142         -78958         1136559         -0.197         -106049         50404           -0.036         -13.8         72.2         -0.142         -78958         1136559         -0.197         -106049         50404           -0.036         -13.8         72.2         -0.142         -78958         1136559         -0.197         -106049         50404           -0.036         -18.5         93.8         -0.016         5904         15436934         0.085         -2555917         709	NO.16 NYLOH	-0.569	-16.4	20.7	-0.403	-43002	381080	-0.217	-29251	22168	-6083	4.12
0.059 241.7 293.3 0.353 5213228 9441151 0.060 -135404 3  0.059 241.7 293.3 0.353 5213228 9441151 0.060 -135404 3  -0.072 -7.9 55.8 -0.010 -4123 1192974 0.093 -50145 5  -0.072 -325.6 467.4 -0.111 -1181654 11261301 -0.017 -602154 5  -0.413 -63.9 74.2 -0.142 -78958 1186558 -0.197 -106049 7  -0.056 -13.8 72.6 0.010 5904 1543497 0.085 -76404 7  -0.056 -18.5 93.8 -0.076 -57750 2002234 0.075 -88420 1  -0.057 -665394 -255317 991 6027742 19912832 0.075 -332220 8  NHY 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	HO.17 STYRENE	0.008	1.6	7.0	0.251	170671	320071	900.0	-6972	7532	559	3.43
0.059   241.7   293.3   0.353   5213228   9441151   0.060   -135404   3	NO.18 ETHYLENE	0.015	17.3	16.2	0.369	1498829	1561813	-0.008	-22681	16628	-6053	3.69
-0.072 -7.9 55.8 -0.010 -4123 1192974 0.098 -50145 -0.072 -325.6 497.4 -0.111 -1181654 11261301 -0.017 -602154 5 -0.413 -63.9 74.2 -0.142 -78958 1186558 -0.197 -106049 -0.036 -13.8 72.6 0.010 5904 1543497 0.065 -76404 -0.059 -18.5 93.6 -0.076 -57750 2002234 0.075 -88420 1 -0.069 -18.5 93.6 -0.076 -57750 2002234 0.075 -266334 28	NO.19 PETROLEUM REFINING	0.059		93.	0.353	5213228	9441151	090.0	-135404	313959	178555	22.69
-0.072 -325.6 467.4 -0.111 -1181654 11261301 -0.017 -602154	HO.20 TIRES	-0.072	-7.9	55.8	-0.010	-4123	1192974	0.098	-50145	59693	85548	7.29
-0.413 -61.9 74.2 -0.142 -78958 1186559 -0.197 -106049 -0.036 -13.8 5.6 0.010 5904 1543497 0.085 -76404 -0.069 -18.5 93.8 -0.076 -57750 2002234 0.075 -88420	HO.23 INTEGRATED STEEL	-0.072	-325.6	487.4	-0.111	-1181654	11261301	-0.017	-602154	521814	-80340	70.27
-0.056 -13.6	NO.24 GRAY IRON FOUNDRY	-0.413	-63.9	74.2	-0.142	-78958	1186558	-0.197	-106049	79390	-26659	18.45
-0.059 -18.5 93.6 -0.076 -57750 2002234 0.075 -88420	NO.25 COPPER	-0.036	-13.8	32.6	0.010	5005		.08	-76404	85446	12043	5.82
CHLY 565 709 8021839 18369344 -2666334 2 8021839 18369344 -255817 -255	NO.26 ESTOR VEHICLE	-0.059	-18.5	93.8	-0.076	-57750	2002234	0.075	-88420	100465	12045	10.63
565 709 8021839 18369344 -255817 0 0 0 0 0	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE ONLY		-692 565 551 0	2623		4276682 8021939 6027742 0	53403728 18369344 19912832 0		-2666334 -255817 -332220	2820843 766800 855246	154458 510983 523026	
	FUEL 1 COST SAVINGS CASES FUEL, COST 2 EMISSION SAVING	<b>(2</b>	565 0	000		8021839 0	18369344		-255817	766800	510933	

	1	אבענאאו זר	HATIONAL	HATIONAL SUBSERY	COSEMERATION TELIMOLOGI ALIERMATIVES STUDI - HATIONAL SUINARY						
TEAP : 1990 HO.16 ADVANCED TECHNOLOSY,GAS	TURBINE, INDIRECT FIRED, COAL(AFB)	ICT FIRED	,COAL(AFB		*** STRATEGY MATCH-E	Y MATE	3+E				07
CATEGOPY		UTILITY	1500	SAVINGS DOLLARS	CAPITAL COST		T	EMISSIONS SAVINGS	泛	S	
	SAVINSS 10**12 BTU	SAVINGS 10**12 BTU	Þ	000\$	000\$		PLANT	UTILITY		TOTAL	
		!	i			·				;	
TOTAL ALL	-1401	9019		18522043	172677184		-8412838	8 9794662		1382022	
FUEL SAVINGS CASES ONLY	2362	3103		26546663	72292048		-1060255			2417715	
COST SAVINGS CASES ONLY	2305	3267		23556000	75250624		-1206707	7 3647502		2440797	
ENISSIONS SAVINGS CASE ONLY	0	0		0	0					0	
FUEL & COST SAVINGS CASES	2392	3103		28546658	72292048		-1060255	5 3477968		2417715	
FUEL, COST & EMISSION SAVING	0	0		0	0				0	•	
		HATI	OHAL FUEL	HATIOHAL FUEL SAVINGS SUMMARY	JEBTARY						
	NATURAL PETR	OLEUM	FUEL SAVINGS PETROLEUM PETROLEUM		10**12 BTU COAL DERIVED			·	TOTAL		
CATEGORY	GAS DI	DISTILLATE	BOILER	GAS D	DISTILLATE BOILER FUEL	ο: .	COAL	OTHER SAVINGS	FUEL		
								1			
SITE PLUS UTILITY											
101AL ALL	14654	-425	6082	0	0		-23909	2197	-1401	_	
FUEL SAVINGS CASES ONLY	10042	-425	5078	0	0		-15266	1363	2392	~	
COST SAVINGS CASES CHLY	12390	-425	5073	0	0		-16041	1363	2365	w	
EMISSICHS SAVINGS CASE CNLY	0	0	0	0	•	0	0	•		0	
FUEL 1 COST SAVINGS CASES	15242	-455	5078	0	0	•	-15866	1363	2392	2	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0		0	
INCLUBING COAL FUEL CONVERSION											
TOTAL ALL	14654	-425	2809	0	0		-23909	2197	-1401	_	
FUEL SAVINGS CASES ONLY	12042	-425	5378	0	0		-15366	1363	239	21	
COST SAVINGS CASES DALY	12390	-425	5073	0	0		-16041	1363	2365	10	
EMISSICHS SAVINGS CASE ONLY	0	0	0	0	0		0	0		0	
FUEL & COST SAVINGS CASES	12242	-425	5078	0	0	•	-15866	1363	2392	61	
FUEL COST & EMISSION SAVING	c	<b>c</b>	<b>~</b>	c	c		c	-			

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01 ECS SIZE (HGJ)	4·40*	.16*	1.34*	1.96*	0.20*	70.67	18.37	46.23	38.68	46.03	16.71	18.84	9.50	6.79	1.48*	3.95*	3.44*	₹98.2	19.44	7.04	67.47	17.96	29.9	10.27	
; <u>1</u> 41	36840	10495	14088	43987	44425	49043 7	47511 1	154275 4	54561 3	316911 4	18098 1	64375 1	33188	12995	3053	12459	1377	1669	218742 1	40667	314647 6	23075 1	53166	64350 1	1677943 1654869 1432291 1432291
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83275	98163	262%	74301	218524	76854	816045	34273	159056	57565	78782	6449	22168	7532	16628	313958	26965	521814	79390	95788	100465	2820844 2741454 2283423 2288423
LANT	-14497	-6290	-6168	-39288	-53738	-47248	-26790	64249-	-22303	-223907	-16176	18956-	-24378	-32161	-1410	-9709	-6155	-9637	-95217	-19026	-207167	-56316	-30280	-36116	-1142902 -106587 -656134 0 -856134
*** STRATEGY MATCH-E PITAL ENISSIONS COST SAVINSS \$000 RATIO P	914.0	0.451	0.254	0.429	0.394	0.422	0.403	0.359	905.0	0.479	0.207	0.363	0.451	0.432	0.210	0.445	0.012	0.039	0.073	0.417	0.065	0.170	0.408	0.402	•
*** STRA' CAPITAL COST \$000	1012119	597666	408286	1185231	4545026	574179	622678	1935954	676478	3305001	329241	1093474	421673	902049	77229	192485	206045	523229	3734100	739555	7103947	624427	953670	1233139	32724944 32100528 22539504 22539504
. B.G. SAVINGS DOLLARS \$000	-1411	-46676	-1235	-43385	-320632	23784	57445	247056	87260	325105	4619	-65108	25684	36353	1273	5248	-43959	-9161	288574	32500	181612	-87697	50286	9604	749652 837349 1370512 1370912
COAL DER COST RATIO	-0.004	-0.341	-0.005	-0.109	-0.627	0.055	0.117	0.132	0.152	0.131	0.010	-0.102	0.091	0.036	0.018	0.049	-0.065	-0.002	0.020	0.080	0.017	-0.157	0.086	0.005	
D CYCLE, UTILITY FUEL SAVINGS	43.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	2623
SS LEVEL RBINE, CLOSEC 7 TOTAL L FUEL SAVINGS	29.5	7.2	11.6	24.0	17.9	25.5	28.5	122.8	43.2	198.0	11.0	18.2	20.6	30.3	2.7	7.4	2.1	33.2	258.9	30.7	190.1	-1.1	43.4	46.3	1202 1203 1054 1059
ARY - PROCE 05Y, GAS TUR FUEL EMERGY SAVINSS RATIO	0.281	0.180	0.163	0.223	0.159	0.213	0.256	0.243	0.279	0.296	660.0	0.105	0.270	0.263	0.142	0.257	0.011	0.028	0.063	162.0	0.042	-0.007	0.271	0.222	
CTAS GEMERAL SURMARY - PROCESS LEVEL HO.17 ADVANCED TECHNOLOSY,GAS TURBINE,CLOSED CYCLE FUEL PRERGY TOTAL UTILITY THOUSTRY SAVINSS FUEL FUEL RATIO SAVINGS SAVINGS	NO. 01 HEAT PACKING	NO.02 BAKINS	NO.03 HALT BEVERAGE	NO.04 WOVEN FABRIC MILL	NO.05 SAW MILL	NO.06 HEMSFRINT MILL	RO.07 WRITINS PAFER MILL	NO.08 CCRRUSATED PAPER	NO.09 BOX BOARD	HO.10 CHLOPINE	NO.11 ALUMINA	NO.12 LCW DEMS. POLYETHYL	NO.13 HI DENS. FOLYETHYL	RO.14 FOLYVINYL CHLOPIDE	NO.15 STYREHE-BUT. RUB.	NO.16 NYLON	NO.17 STYRENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	NO.23 INTEGRATED STEEL	NO. 24 GRAY IPON FOUNDRY	NO.25 COPPER	NO.26 MOTOR VEHICLE	ALL S CASES ONLY S CASES ONLY AVINGS CASE OF SAVINGS CASE SAVINGS CASE EMISSION SAV

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURVARY

NO.17 ADVANCED TECHNOLOGY, GAS	S TURBINE, CLOSED CYCLE, COAL DER. B.G.	O CICLE,	COAL DER.	B.G.	***	*** STRATEGY MATCH-E	TCH-E				07
	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 B1	_	COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		E PLANT	EMISSIONS SAVINGS TONS PER YEAR TON UTILITY FO	SAVING YEAR ITY	S TOTAL	
		! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !	,	4 4 1 1 3 4 4 5	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	;					
	2558	9018		3253400	98270448	48	-4096101		9794866	5699752	
	39.9	8070		3421500	97073552	S	-3538156		9642691	5654523	
	3433	75.10		4765340	72220+16	16	-3192790		6162373	4989576	
ENISSIONS STVINGS CASE ONLY	0	0		0		0		•	•	0	
	3433	7506		4765340	72228416	16	-3192790		8162373	4989576	
TUEL, COST & ENISSION SAVING	0	c.		•		•		0	•	•	
		#A1	HATIOHAL FUEL SAVINGS SURBARY	SAVINGS SI	URBIARY						
			FUEL SAVINGS	1	10++12 BTU		;				
	HATUPAL PL GAS DI	PLTPOLEUM DISTILLATE	PETROLEUM EOILER FUEL	GAS 03	COAL DEPIVED UISTILLATE	BOI. ER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL FUEL		
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		•			;	
	14654	-425	6052	0	•	-26365	7804	2197	35	3947	
	14583	1475	€073	0	0	-26066	7659	2119	33	39+9	
	7400	-425	3979	0	0	-15723	6171	2032	ř	33	
ENISSIONS SAVINGS CASE ONLY	0	0	0	0	•	0	0	•		•	
	2047	-405	3979	0	0	-15723	6171	2032	ň	3433	
FULL, COST & ENISSION SAVING	0	•	0	0	0	•	•	0		•	
THOUGHT COAL FUEL CONVERSION											
	0	0	0	0	0	O	-844	2197	=	1352	
	0	0	0	0	0	0	-46A	2119	-	1451	
	0	0	0	0	٥	0	-642	2032	13	1389	
INTESTAT SAVINGS CASE DREY	0	0	c	0	0	•	0	•		0	
	0	0	0	0	0	0	-642	2032	E	1389	
FULLICEST & LHISSION SAVING	o	0	0	o	•	0	•	0		0	

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01 ECS SIZE (Fd.)	33066 4.48*	6805 8.17#	9265 1.39*	20225 2.03*	18194 0.20*	47511 72.53	56593 18.90	154811 47.47	60835 39.97	182657 47.34	9845 17.33	24116 19.37	16755 9.80	26986 7.00	2003 1.53*	5929 4.08#	852 3.38#	-9464 2.55*	91277 19.65	23490 7.29	184404 69.51	916 16.44	32780 5.81	38198 10.58	1038054 565074 764309 777464
EMISSIGMS SAVINGS TOMS PER YEAR	51357	16786	20256	83275 2	98163	96292	74301 5	218524 15	76664 6	540018 16	34273	159056 2	57565	76762 2	4463	22168	7532	16628 -	313958 9	59693	521814 18	79390	88446 3	100465 3	2820843 103 2378793 96 1941750 76 0 0
LAN	-16271	-9931	16601-	-63049	-79969	-48781	-17708	-63713	-16029	-358162	-24429	-134940	-40810	-51795	-2456	-16239	-6680	-26091	-222681	-36202	-337410	-78474	-55667	267	-1782793 26 -1410122 23 -1157446 19 0 1062733 16
STRATEGY MATCH-E L EMISSIONS F SAVINGS -	0.373	0.292	0.167	0.197	0.162	604.0	0.480	0.361	0.452	0.276	0.113	0.136	0.228	0.250	0.138	0.212	0.008	-0.012	0.031	0.241	0.038	0.007	0.230	0.239	
*** STRAL CAPITAL COST \$000	1339346	891552	727740	1966399	7385178	754654	951639	2613820	914144	4404310	484468	1524231	621679	973205	137143	308358	290161	1224623	6410485	1052146	8596213	905508	1356408	1557698	47421392 35331600 27057904 25843840
SAVINGS DOLLARS \$000	53395	-65367	33512	-84059	-568393	124175	172534	626069	223572	449629	47568	-16833	32219	59632	10246	3228	175200	1543629	5422376	55923	-43097	43312	89701	76780	8529255 8152630 9307664 9261305
COST RATIO	0.137	-0.458	0.127	-0.212	-1.111	0.285	0.352	0.368	0.339	0.181	0.107	-0.026	0.115	0.141	0.142	0.030	0.258	0.381	0.368	0.139	-0.00÷	0.078	0.153	0.101	ı
D CYCLE,COUTILITY FUEL SAVINGS	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	62.6	93.8	2623 2216 1602 0
BINE,CLOSED TOTAL U FUEL SAVINGS S	56.9	2.9	6.5	-4.6	-13.6	27.0	41.9	137.9	55.8	33.8	2.3	-29.6	0.8	7.2	1.6	-0.5	1.8	10.3	107.3	10.7	27.2	-27.8	13.9	15.3	9 M M 9
OGY,GAS TURBINE,CLO FUEL EHERGY TOTAL SAVINGS FUEL RATIO SAVINGS	0.257	0.073	360.0	-0.043	-0.121	0.225	0.376	0.273	0.360	0.058	0.021	-0.170	0.010	0.063	0.084	-0.017	0.009	600.0	0.026	0.003	900.0	-0.189	0.087	0.073	
HO.16 ADVANCED TECHNOLOGY,GAS TURBINE,CLOSED CYCLE,COAL(AFB) FUEL ENERGY TOTAL UTILITY COST SAVINGS FUEL FUEL RATIO SAVINGS SAVINGS RATIO	NO.01 MEAT PACKING	HO.02 BAKING	HO.03 MALT BEVERAGE	HO.04 HOVEN FABRIC MILL	HO.05 SAW MILL	NO.06 NEWSPRINT MILL	HO.07 ERITING PAPER MILL	NO.08 CORRUGATED PAPER	HO.09 BOX BOARD	NO.10 CHLORINE	NO.11 ALUITHA	NO.12 LCM DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 FOLYVINYL CHLORIDE	HO.15 STYRENE-BUT. RUB.	NO.16 NYLON	NO.17 STYRENE	NO.18 ETHYLENE	HO.19 PETPOLEUM REFINING	1:0.20 TIFES	KO.23 INTEC9ATED STEEL	HOLZ4 GPAY IRON FOUNDRY	NO.25 COPPER	HO. 26 HOTOR VEHICLE	SAVINGS CASES CHL SAVINGS CASES CHL IONS SAVINGS CASE & COST SAVINGS CA

- CCCENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

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TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINSS 10**12 BT	COST 5	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PEP YEAR PLANT UTILITY T	نو	S  TO! AL	
		;	8 9 9 1		1	1		ŀ		
2230	9018		31719072	14406979	~	-56660		Ĭ	128784	
5469	7752		32961640	11595574	•	-45234			1916775	
2355	6937		33261534	10034958	6	<b>-40524</b>	•	•	1229951	
0	•		0	-	0				•	
2410	6788		33169744	9776950	*	-38575			1550264	
0	•		0		•		•	9	•	
	HATI	ONAL FUEL	SAVINGS 5	UUTHARY						
1 1 1 1 1		JEL SAVINGS	;		1 1 1 1 1	;				
NATURAL PEI GAS DIS		PETROLEUM BOILER FUEL	GAS D	IL DERIVED	POTLER FUEL	COAL	OTHER SAVIHGS	TOTAL		
		•	!		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				!	
14654	-425	2909	0	0	0	-20278	2197	22.	20	
14479	1405	6020	0	0	•	-19694	2038	,; ,;	0	
15003	-425	5454	0	0	0	-17265	1503	23	55	
0	0	0	0	c	0	·9	0		0	
13013	-425	5441	0	0	0	-17043	1424	52	2	
0	0	0	0	0	0	0	•		•	
14654	-425	6092	0	0	0	-20278	2197	22	30	
14479	-425	6020	0	0	0	-19694	2088	3.7	53	
13003	-425	5454	0	0	0	-17265	1503	23	55	
0	0	0	0	0	•	•	0		0	
13013	-425	5441	0	0	0	-17043	1424	32	2	
0	0	0	0	0	•	•	•		0	
	2230 2463 2463 2410 0 2410 0 2410 0 2410 0 2410 0 2410 0 2410 0 2410 13023 13023 13023 13013 13013	5 6 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 6 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	9018 31719072 7752 32961640 6937 9018 33169749 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9018 31719072 7752 32961640 6937 9018 33169749 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9016 31719072 144069792 7752 32961640 115955744 6937 90180 91769504 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9018 31719072 144069792 7752 32961640 115955744 6937 3261640 115955744 6937 6938 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9016 31719072 144069792 -5666062 7752 52961640 115955744 -4523459 6937 52961640 115955744 -46523459 6937 52961640 115955744 -4523459 6937 69594 69595 6959 695966 695966 695966 695966 695966 69596 69	9016 31719072 144069792 -5646062 9794666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9660 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9666 9795 9795	1719072   144069792   -5666062   9794666   412976     7752   22961840   115955744   -4523465   8440247   316477     7752   22961840   110349089   -4623465   7620730   356628     6726   33169744   97769504   -3857579   7467853   355628     6726   33169744   97769504   -3857579   7467853   355628     6726   33169744   97769504   -3857579   7467853   355628     77610184   FUEL SAVINGS SUPPLAPY   FUEL SAVINGS     77610184   FUEL SAVINGS SUPPLAPY   FUEL SAVINGS     77610184   FUEL SAVINGS   -10*812   FUEL SAVINGS     77610184   F

M INJECT.G/T.DIR.FIRED.PE RGY TOTAL UTLLIY S FUEL FUEL	IIIY C	ن	1505	DOLLARS		EMISSIONS SAVINSS	ENI:	EMISSIONS SAVINGS TONS PER YEAR	165	ECS SIZE
RATIO SAVINES S	\ \ !	S 6	KAT10	\$000	\$000	RAT10	PLANT	UTILITY	TOTAL	
9		15.7	8.	-9522	177544	0.472	-609	16786	10687	9
0.115 6.2		18.9	0.032	8383	172331	0.238	-7677	20256	12360	1.31
0.300 32.3		77.8	0.140	55624	9560+5	9.526	-30421	63274	52853	1.90
0.277 31.1		91.7	-0.017	-8641	1854001	0.521	-40240	98163	57924	0.20*
0.268 34.5		91.4	0.193	84101	214322	0.517	-37253	96298	59039	69.01
0.220 24.5		59.1	0.143	69915	264784	0.412	-27541	74301	46760	17.98
0.166 83.9	2	9.50	0.104	195830	166558	0.330	-84076	218524	134448	45.49
0.190 29.5		72.5	0.122	70104	26,671	0.370	-29305	76864	47560	38.26
0.372 248.9	3	1.665	0.276	684158	1172723	0.571	-170486	540619	370333	44.64
0.050 5.5		32.0	0.003	1439	131541	0.189	-18292	34273	15982	16.43
0.244 42.6	<u> </u>	48.6	921.0	80528	394322	0.507	-70090	159056	99689	18.17
0.23 22.9		53.7	0.196	55671	163138	0.512	-20782	57565	36784	9.24
9.15 31.4		73.7	0.169	71407	267181	0.478	-28602	78782	50179	6.62*
0.102 1.9		;;	0.033	2393	34580	9.195	-1787	4463	2677	1.45*
0.304 8.8	-	20.7	0.189	20102	76510	0.519	-7953	22168	14214	3.84*
0.004 0.7		7.0	-0.067	-45230	161803	0.011	-6456	7532	1076	3, 39*
0.015 17.1		16.2	-0.024	-96178	664303	-0.003	-16802	16628	-2174	3.91*
0.045 185.2	ř	93.3	-0.005	-73274	3631939	990.0	-135500	313958	178458	21.61
0.218 23.9		55.8	0.120	48438	289166	905.0	-21850	26963	37842	<b>6</b> .90*
0.043 196.5	Ť	97.4	0.050	537056	3508153	0.070	-183599	521814	336115	98.65
9.62 161.0	* *	14.5	0.104	58023	231982	0.372	-31112	79390	48279	17.23
9.221 35.4	~	82.6	0.123	72592	369218	907.0	-32893	88446	55554	5.50#
0.192 40.1		93.8	0.073	55080	433071	0.412	-37002		63463	10.04
2911 6011 0011 0011		6512 6512 6512 6512		1962191 1962191 2195027 2195027	670 670 710 710	1	-1067276 -1067276 -860179 -660179	2820844 2820844 2367779 2367779	1753571 1753571 1753571 1507602 0	

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0.0	NSS  TOTAL	66 5951234 56 5951234 63 5469654 63 5489864 64 5489864	TOTAL FUEL	3782 3782 320 320 320	8 576 E
	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	-333366 623563 -333366 6633563 -333366 6623563	T OTHER SAVINGS	2197 2197 831 831	2197 2197 831
PATCH-F	PLANT	-3344620 -3843620 -3333666 -3333666	COAL	77900 000 000 000 000 000 000 000 000 00	7804 0 7804 0 6448 0 6448
A-ROLEW ASSISTED SER	CAPITAL CGST \$000	48095640 40095640 31550256 31550256	S SUFFIRE ETU	00000	6000
FIGURE BOTTER	CCST SAVINSS DOLL/RS \$800	6654904 66554004 7694957 7698957	5 10 6AS	20447 0 20447 0 -7516 0 -7518 0	200447 70447 -7516 0
MAILENAL SOUTH TOTAL SETTING TO BE SETTING TO SET SETTING TO SET SETTING TO SET SETTING TO SET SETTING TO SET SETTING TO SET SET SETTING TO SET SETTING TO SET SETTING TO SET SETTING TO SET SET SET SET SET SET SET SET SET SET	UTILITY CC FUEL SAVINGS 1012 BTU	9013 9013 9016 8100	11E	-425 -20447 -425 -20447 -425 -20447 -425 -20447 -425 -20167	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1	:	00000 00000 000000 0000000	i	775000 1	7 7 6 0 7 9 9 7 7 9 9 7 7 7 7 7
ACCIONATE GENERAL EN DE CARACTER DE CARACT	CATEGOTY	FULL SAVINGS CACES CHLY COST SAVINGS CASES CHLY UNISSICHS SAVINGS CASE CHLY FUEL & COST SAVINGS CASES FUEL & COST SAVINGS CASES FUEL & COST SAVINGS	CATECONY	SITE PLUS UTILLITY TOTAL ALL FUEL SAVINGS CASED CHLY CGST CAVID 3S CASES CHLY EMISSICHS SAVIN, S CASE CHLY EMISSICHS SAVIN, S CASE CHLY FULL & COST SAVINGS FUEL, COST & EMISSICH SAVING	INCLUDING COAL FUEL CONVERSION TOTAL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY FUEL SAVINGS CASES ONLY FUEL SAVINGS CASES ONLY FUEL SAVINGS CASES CARE

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FO.01 NEAT PACKING 0 HO.02 BAKING 0 HO.03 HALT BEVERAGE 0	RATIO	FUEL SAVIKSS	FUEL	RATIO	SAVINGS DOLLARS \$000	CAPITAL COST \$000	ENISSIONS SAVINGS RATIO	PLANT	ENISSIONS SAVINSS TONS PER YEAR UTILITY TO	TOTAL	SIZE (MA)
BAKIHS HALT BEVERAGE	0.195	20.5	48.0	0.064	24781	393772	0.343	-20907	51337	30431	4.30#
	0.166	6.7	15.7	-0.067	-9522	177544	0.435	-6651	16706	10134	0.16*
	0.115	8.2	18.9	0.032	8383	172331	0.210	20 <b>98</b> -	20256	11654	1.31*
HO.04 MOVEN FABRIC MILL 0	0.300	32.3	77.8	0.140	55624	440956	685.0	-33182	83275	50093	1.90*
NO.05 SAW MILL 0	0.277	31.1	91.7	-0.017	1598-	1854001	0.481	-44039	18163	54125	0.20*
NO.06 NEWSFRINT MILL 0	0.288	34.5	91.4	0.193	84101	214322	0.479	-40682	96292	55609	69.01
HO.07 WRITING PAPER MILL 0	0.220	24.5	59.1	0.143	69315	264784	0.375	-30050	74301	44251	17.98
MO.08 CORRU ATED PAPER 0	0.166	83.9	205.4	0.104	195830	166458	0.295	-91808	218524	126716	65.49
HO.09 BOX BOARD 0	0.190	5.62	72.5	0.122	70104	284671	0.334	-31993	76864	44871	38.26
NO.10 CHLORINE 0	0.372	248.9	499.1	0.276	684159	1172723	0.537	-185788	540818	355030	49.64
tio.11 ALUMINA 0	0.050	5.5	32.0	0.003	1499	131241	0.162	-20090	34273	14183	16.43
NO.12 LOW DENS. POLYETHYL 0	0.244	42.6	148.6	0.126	80528	394322	99.0	-76802	159056	82254	18.17
NO.13 HI DEMS. POLYETHYL 0	662.0	22.9	53.7	0.196	55071	163138	0.475	-22662	57565	34904	9.24#
HO.14 POLYVINYL CHLORIDE 0	0.273	31.4	73.7	0.169	71407	267181	0.441	-31194	78782	47588	4.62*
HO.15 STYRENE-BUT. RUB. 0	0.102	1.9	4.3	0.033	2393	34580	0.173	-1952	4463	2511	1.45*
NO.16 HYLOH 0	0.304	8.8	20.7	0.189	20107	76510	0.482	-8672	22169	13496	3.84*
HO.17 STYREHE 0	0.004	0.7	7.0	-0.067	-45230	161803	0.004	-7129	7532	403	3,39*
NO.18 ETHYLENE 0	0.015	17.1	16.2	-0.024	-96181	694302	-0.005	-20720	16628	-4092	3.91*
HO.19 PETROLEUM REFINING 0	9,0.0	186.1	293.3	-0.005	-69693	3631284	0.056	-147180	313958	166779	21.81
110.20 TIRES 0	0.218	23.9	55.8	0.120	48438	289166	0.368	-23835	26963	35858	*06.9
NO.23 INTEGRATED STEEL 0	0.043	196.5	487.4	0.050	537096	3503153	990.0	-201930	521814	319885	98.65
NO.24 GPAY IRCH FOUNDRY 0	0.190	29.4	74.2	0.103	57307	232014	0.334	-3415/	79390	45234	17.23
NO.25 COPPER 0	0.221	35.4	82.6	0.123	72592	369218	0.369	-35891	38446°	52556	5.50*
LE	0.192	40.1	93.8	0.073	55080	433071	0.375	-40367	100465	6009	10.04
. ow>		1162 1162 921 921 921	2002 2002 219 219		1965042 1965042 2194311 2194313	00-	i	-1166278 -1166278 -940503 -940563	1446	1654566 1654566 1427218 1427218	

	ATCH-E	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TOTAL		-4201059 9794866 5593793 -4201059 9794866 5593793 -3643864 8823563 5179687	0 0 0 0 -3643864 8923563 5179687 0 0 0		TOTAL COAL DTHER FUEL FUEL SAVINGS			2197	0448 831 3220 0 0	69.	0	-1077 2197 1119	2197	831	0	831 148	0 0
TIVES STUDY -	*** STRATEGY MATCH-E	CAPITAL CCST \$000	6 1 1 1 1 1 1	48094608 48094608 31550320	0 31550320 0	HHARY	COAL DERIVED DISTILLATE BOILER FUEL	***************************************		•	0	616-						0	
COGENERATION TECHNOLOGY ALTERNATIVES STUDY HATIONAL SUMMARY	COAL DER. B.G.	COST SAVINGS DOLLARS \$000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6660433 6660433 7697584	0 9457697 0	NATIONAL FUEL SAVINGS SUMMARY	FUEL SAVINGS 10** PETROLEUN COAL E GOILER GAS DI	: : : : : : : : : : : : : : : : : : : :		6002	0		0 0	0		0		0 (	
- COGENERATION	STEAM INJECT. 6/T, DIR. FIRED, COAL DER. B.G	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU		3784 9018 3784 9018 3226 8106	0 0 3226 8106 0 0	NATIO	HATURAL PETROLEUM PEGAS DISTILLATE E			14654		3889 -425	0					0 (	
YEAR : 1990	NO.20 ADVANCED TECHNOLOGY,STEAM	CATEGORY	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL,COST & ENISSION SAVING		CATEGORY	3 9 9 9 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	SITE PLUS UTILITY TOTAL ALL	FULL SAVINGS CASES ONLY	EHISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	INCLUDING COAL FUEL CONVERSION TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES CHLY	ENTSSICHS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	TULLICUST & ENISSIES SAVING

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01 EMISSIONS SAVINGS ECS 10HS PER YEAR SIZE UTILITY TOTAL (1144)	51337 22345 4.33*	16786 7509 0.16*	20256 8094 1.32#	03275 34039 1.92*	98163 41767 0.20*	96292 44754 69.48	74301 33848 18.07	18524 97208 45.67	76664 34661 38.43	540818 256116 44.99	34273 8179 16.52	59056 54317 18.31	57565 23815 9.31*	78782 33262 6.67*	4463 1729 1.46#	22168 9455 3.87#	7532 -690 3.30*	16628 -15144 3.56*	313958 102169 21.61	59693 25035 6.94*	521814 220716 99.42	79390 31371 17.33	86446 36575 5.54*	100465 41948 10.11	4 115312 10 106981 0 100800 0 100800
 LANT	-28992	-9277	-12162	-49236	-56396	-51537	-40453	-121316 2	-45204	-284703 5	-26094	-104740 1	-33750	-45520	-2734	-12713	-8222	-31772	-211789	60951-	-301099	-48019	-51871	-58517	1667717 2 1523662 2 1552809 2 0 1413754 2
TEGY MATCH ENISSIONS SAVINGS RATIO	0.252	0.322	0.146	0.332	0.371	0.385	0.287	0.227	0.258	0.387	0.094	0.307	0.324	0.308	0.119	0.333	-0.006	-0.019	0.034	0.257	0.045	0.231	0.257	0.262	
*** STRATEGY MATCH-E CAPITAL EHISSIONS COST SAVINGS - \$000 RATIO P	1339354	492186	549663	1654660	4958789	802844	814348	2283310	758280	4596127	401678	1497132	642330	26696	103791	292441	278789	1389321	7020856	626286	7271003	876580	1254897	1507564	42639616 40062043 35734064 33556464
PFB) SAVINGS DOLLARS	55/25	-28047	43790	-36010	-285329	84881	110014	211415	146615	492424	44115	31639	33939	12655	11561	8+97	169103	1462850	5180326	52397	55056	114335	92006	56990	6475614 8230759 6624998 0 8530143
ED,COAL( COST RAFIO	0.012	-0.196	0.166	-0.091	-0.558	0.195	0.225	973.0	0.255	0.198	0.100	0.050	0.121	0.132	0.164	0.083	652.0	0.366	0.351	0.129	6.00.0	0.002	0.156	0.075	
DTRECT FIRED,COAL(PFB) UIILITY COST SAVI FUEL DOL	48.0	15.7	18.9	77.8	91.7	4.16	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
<b>!</b>	7.7	2.5	5.6	7.5	11.2	16.4	10.3	36.1	12.8	97.8	-3.8	9.0-	5.8	9.1	0.7	2.5	-1.0	4.0	85.8	7.1	47.2	7.9	10.5	11.9	389 334 367 0 373 0
() ()	0.073	0.063	0.037	0.070	0.039	0.137	0.093	0.071	0.083	0.146	-0.035	-0,003	9.0.0	0.079	0.033	0.003	-0.005	0:000	0.021	0.065	0.010	0.051	0.066	0.057	, ,
CTAS GENERAL SUMMIRRY - FROM MO.21 ADVANCED TECHNOLGGY,STEAM FUEL ENER THOUSTRY SAVINGS RATIO	HO.01 MEAT PACKING	NO.02 BAKING	HO.03 HALT BEVERAGE	NO.04 WOVEN FAERIC MILL	NO.05 SAW MILL	HO.06 NEWSPRINT HILL	NO.07 WRITING PAPER HILL	HO.03 CCRRUSATED PAPER	HO. 09 BOX EOARD	NO.10 CHLORINE	NO.11 ALUMINA	110.12 LOW DENS. POLYETHYL	RO.13 HI DEMS. POLYETHYL	NO.14 POLYVINYL CHLOPIDE	HO.15 STYRENE-BUT. RUG.	HO.16 HTICH	KO.17 STYPEKE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	HO.20 TIRES	NO.23 INTEGRATED STEEL	HOLDS GRAY IPON FOUNDRY	HO.25 COPPER	ш	FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSICUS SAVINGS CASE ONLY HELL & COST SAVINGS CASES FIEL, COST & PRESSICH CAVINGS

-21259 -20229 -21206 -20176

-425 -17 -425 -17 

THOUGHES COAL FUEL CONVERSION TOTAL -- ALL FUEL SAVINGS CASES ONLY EULSTAWNES CASES ONLY EULEL, SOST SAVINGS CASE CHLY FUEL & COST SAVINGS CASE FUEL & COST SAVINGS CASES FUEL, SOST SAVINGS CASES

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

YEAR : 1990

## FUEL SAVINGS COST FLAN  SAVINGS \$000 \$000 PLAN  SAVINGS \$000 \$000 PLAN  TU 10**12 BTU			7	1				0 F M U	SOUTH SOUTH	90742
1249   9018   29341136   133236784   120617632   1206   7920   28342364   120617632   1206   7920   28342364   120617632   1206   7920   28342364   120617632   119616624   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CATEGORY	IDIAL FUEL SAVIN3S 10**12 BTU	ULILLIT FUEL SAVINGS 10**12 BTU	5 1500	VINGS OLLARS \$000	CAP11AL COST \$000	i D.	Ents	ENISSIONS SAVIE TOMS PER YEAR PLANT UTILITY	AR TOTAL
1249   9018   29541136   133236784   -5643   -5643   -5621   -5621   -5621   -5623			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	•	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		!	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
1295   7920   28329164   120617632   -5021     1206   8663   30210632   119616624   -5623     1206   8663   30210632   119616624   -5623     1255   7565   28998896   106997463   -4801     VIHG	TOTAL ALL	1249		()	9541136	133236784	-5	5843766	9794866	
1206   8663   30210632   119616624   -5623   5623   600   60   60   60   60   60   60	FUEL SAVINGS CASES ONLY	1295		(1	8329164	120617632	-5	-5021552	861921	
NATIONAL FUEL SAVINGS SUMMARY   NATIONAL FUEL SAVINGS SUMMARY   SAS	COST SAVINGS CASES ONLY	1206		m	0210832	119616624	5-	-5623509	9414608	
1255   7565   28998896   106997468   -4801	EMISSIONS SAVINGS CASE ONLY	0			٥	0		0		0
Internal Fore Savings Surmary   Hatiohal Fuel Savings Surmary	FUEL & COST SAVINGS CASES	1255		Cu	9686668	106997468	<b>5</b> -	-4801295	8239252	2 3437949
HATIOHAL FUEL SAVINGS SUNHARY	FUEL, COST & EMISSION SAVING	•			0	o		•		0
HATUPAL PETROLEUM PETROLEUM COAL DERIVED GAL DERIVED -			NATIO	HAL FUEL S	AVINGS S	UNHARY				
14654 -425 6062 0 0 0 -21259 13376 -17 5513 0 0 0 -20229 14621 -425 6051 0 0 0 -20229 153343 -17 5492 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CATEGORY		ETROLEUM PISTILLATE	L SAVINGS ETROLEUM EDILFR FUEL	20	*12 BTU L DERIVED ISTXLLATE GOILE FUEL			TO OTHER SAVINGS	TOTAL FUEL
13376 -425 6082 0 0 0 0 13376 -17 5513 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SILE PLUS ULLLIY	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 4 1 1 1 1					
13576 -17 5513 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL ALL	14654	1. U. 1.	2000	<b>.</b>	<b>&gt;</b> •			2177	1044
11421 -425 6051 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FUEL SAVINGS CASES UNLY	01561	/ -	\$ T 6 6	o •	<b>.</b>			(12)	6671
13343 -17 5482 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	COST SAVINSS CASES ONLY	14621	-455	6051	0	0		900	2167	1208
13943 -17 5482 0 0 0 0 0 0 0 0 0 0 0 0	ELESSIONS SAVINSS CASE ONLY	0	0	0	0	0		0	0	0
0 0 0 0	FUEL & COST SAVINGS CASES	13343	-17	5435	0	0		176	2123	1255
	FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0	0

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CTAS GENERAL SUMMARY - PROC NO.22 ADVANCEO TECHNOLOSY,STEAN FUEL ENERG INDUSTRY SAVINGS RATIO	TESS LEVEL INJECTED SY TOTAL FUEL SAVINGS	G/T, PDIRECT UTILITY FUEL SAVINGS R	FIRED, COST	FIRED, COAL(AFB) COST SAVINGS DOLLARS ATIO \$000	*** STRA CAPITAL COST \$000	> :n = a	E	013 PT	465  TOTAL	01 ECS SIZE (MH)
	9.9	48.0	950.0	17808	1303954	0.235	-30492	51337	20845	*67.4
-0.017	-0.7	15.7	-0.254	-36206	516917	0.150	-12599	16766	4187	0.17*
-0.020	-1.4	18.9	0.133	35140	564629	0.071	-16307	20256	3949	1.37*
-0.037	-9.3	77.8	-0.178	-70565	1694344	0.164	-66482	83274	16792	2.00*
-0.033	-9.3	91.7	-0.660	-337566	5123423	0.190	-76741	98163	21422	0.20*
-0.019	-2.3	91.4	0.119	51779	802833	0.223	-70399	36296	25893	72.31
200.0	0.2	59.1	0.182	89334	819629	0.176	-53539	74301	20762	18.78
0.050	25.4	205.4	0.273	512318	2245018	0.178	-142229	218524	76295	47.31
0.050	7.7	72.5	0.248	142666	788374	0.196	-50505	76864	26359	39.83
-0.014	-9.1	499.1	0.121	568662	4562275	0.221	-394504	540818	146314	46.83
-0.095	-10.6	32.0	0.071	31601	40905	0.014	-33023	34273	1250	17.18
-0.213	-37.2	143.6	-0.071	-45502	1560916	0.104	-140662	159056	18394	19.04
-0.077	-5.8	53.7	0.049	13565	632200	0.162	-45667	57565	11898	9.70*
-0.057	-6.6	73.7	0.065	27458	68889	0.158	-61694	78782	17068	*56.9
600.0-	-0.2	4.2	0.139	10056	106229	0.057	-3642	4463	822	1.52*
-0.065	-1.9	20.7	0.003	810	292317	0.175	-17266	22168	4905	4.03*
-0.003	-0.6	7.0	0.252	170749	281011	-0.008	-6391	7532	-860	3.59*
600.0	10.7	16.2	0.372	1507469	1394025	-0.012	-26095	16628	-9467	3.61*
0.038	155.1	293.3	0.364	5363479	7012047	0.044	-183313	313953	130646	22.21
-0.044	-4.8	55.8	0.077	31248	930904	0.132	-46832	26963	12861	7.23#
-0.013	-58.1	4.27.4	-0.009	99096-	7266352	0.025	-401435	521614	120379103.45	03.45
650.0-	-7.6	24.5	0.153	654.27	837681	0.115	-63782	79390	15608	18.00
-0.044	-7.1	82.6	0.102	60234	1254527	0.129	-70005	83446	18441	5.76*
-0.039	-8.1	93.8	0.032	24297	1535330	0.133	-79103	100465	21362	10.52
! !	1	190 T		7894164 7638013 8480365 7633013	43001528 1353548 26539440 135635440		-2094702 -486173 -1396786 0 -466173			

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	900 -	ENERATIC	H TECHROLO	TECHNOLOGY ALTERN	COGENERATION TECHNOLOGY ALTERNATIVES STUDY HATTONAL SINGLADY	<u>'</u>					
YEAR : 1996 POLE ADVANCED TECHNOLOGY,STEAM INJECTED G/T,INDIRECT FIRED,COAL(AFB	4 INJECTED G/T	, INDIREC	T FIRED, CO	JAL(AFB)	*** STRATEGY HATCH-E	NTEGY MA	ATCH-E				07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT	1503	SAVII:GS DOLLARS \$000	CAPITAL COST \$000		E PLANT	ENISSIONS SAVINGS TONS PER YEAR IT UTILITY T	SAVING YEAR ITY	5  TOTAL	
	;		i		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		;		;	;	
TOTA! A!!	10-	9018		22276720	9191611		0666172-	Ī	9796866	1175816	
UEL SAVINSS CASES ONLY	97.5	2787		25441952	50795308		-2185453	•	1134078	94.96.30	
COST SAVINGS CASES ONLY	241	6987		265 395 96	97957040		-5641932		7620730	1978799	
ENISSIONS SAVINGS CASE ONLY	0	0		0	0		1		0	0	
FUEL & COST SAVINGS CASES	534	2787		25441952	50795308		-2185453		3134078	948630	
UEL, COST & ENISSION SAVING	0	0		0	0				•	0	
		NAT1	MATIONAL FUEL	SAVINGS SUIMARY	JIIMARY						
CATEGORY	HATURAL PET GAS DIS	FU PETROLEUM DISTILLATE	FUEL SAVINGS   PETROLEUN   FOILER   FUEL	10 CC GAS	_ ED _	BOILER FUEL	COAL FUEL	OTHER SAVIHGS	TOTAL FUEL		
	1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			;		;	
SITE PLUS UTILITY			,	•		,				!	
IDIAL ALL	14654	-425	6032	0	0	0	-22601	2197	1	-93	
UEL SAVINOS CASES ONLY	11439	0	4513	0	0	0	-16780	1313	5	34	
COST SAVINGS CASES ONLY	13083	-425	7575	0	0	0	-19379	1503	2	241	
ENISSIONS SAVINGS CASE ONLY	0	0	0	0	0	0	0	0		0	
FUEL & COST SAVINGS CASES	11488	0	4513	0	0	0	-16780	1313	Ŋ	534	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	•		0	
INCLUDING COAL FUEL CONVERSION											
TOTAL ALL	14654	-425	6032	0	6	0	-22601	2197	1	-93	
UEL SAVINGS CASES CHLY	11488	0	4513	0	0	0	-16780	1313	5	34	
COST SAVINSS CASES CHLY	13003	-425	5424	0	0	0	-19379	1503	نه د	241	
KIND 3SYD SCHIARS SHOISSING	0	0	0	0	0	0	0	0	•	. 0	
FUEL & COST SAVINSS CASES	11453	0	4513	0	0	0	-16780	1313	5	534	
UEL, COST & ENISSION SAVING	0	0	0	0	0	0	0	0		0	

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FUEL ENLAGY SAVINGS RATIO S	TOTAL FUEL SAVINOS	FUEL 5AVINSS	COST RATIO	SAVINGS DOLLARS \$000	CAPITAL COST \$000	PITAL EMISSIONS COST SAVINGS - \$000 RATIO P	ELIS FLANT	EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	HGS TOTAL	ECS SIZE (rilla)
0.207	21.7	48.0	0.007	2692	664418	0.389	-18312	51337	33025	4.32*
0.177	7.1	15.7	-0.247	-35242	449316	0.485	-5822	16786	10963	0.16*
0.122	8.7	18.9	-0.010	-2574	301629	0.245	-7541	20256	12715	1.32*
938.0	35.1	77.8	0.052	50644	901280	0.544	-28538	63274	54736	1.91*
0.403	45.3	91.7	-0.274	-140203	3682220	90.00	-30935	98163	67228	0.20*
0.340	6.04	91.4	0.227	99066	305320	0.553	-33150	96292	63142	9.38
0.234	26.0	59.1	0.134	65486	382885	0.423	-26333	74301	47968	18.07
0.176	89.2	205.4	0.103	194028	1084796	0.339	-80512	218524	138611	45.72
0.202	31.3	72.5	0.120	69889	374924	0.380	-28052	76864	48812	38.46
0.389	260.4	499.1	0.272	674450	1766361	0.582	-162881	540819	377938	44.88
0.057	6.3	32.0	-0.002	-1029	190581	0.195	-17740	34273	16533	16.51
0.339	59.1	148.6	0.185	118025	645484	0.569	-59303	159056	99753	18.26
0.317	24.3	53.7	0.174	48974	281577	0.525	-19849	57565	37716	9.29#
683.0	33.3	73.7	0.140	59139	468155	0.491	-27325	78782	51457	<b>9.65</b> *
0.108	2.0	4.2	0.006	411	58740	0.200	-1714	4463	2750	1.46*
0.323	9.3	20.7	0.149	15864	140905	0.532	-7594	22168	14573	3.86*
0,005	6.0	7.0	-0.069	-47146	188885	0.012	-6326	7532	1206	3.40#
0.007	8.2	16.2	-0.042	-168409	1016333	-0.011	-24346	16628	-7718	4.78*
0.052	211.5	293.3	0.000	259	4004742	0.072	-118176	313958	195782	21.55
0.231	25.3	55.8	0.087	35219	666624	0.415	-20882	59693	38811	₩£6.9
9+0.0	207.7	487.4	0.050	531504	4039773	0.071	-176387	521814	345427	99.18
0.285	44.2	74.2	0.176	98216	375447	0.445	-21602	79390	57788	17.32
0.234	37.5	82.6	0.095	55814	624678	0.416	-31456	95448	26990	5.53*
0.204	42.5	93.8	0.051	990	400	0.422	-35371	100465	96059	10.09
TOTAL ALL FULL SAVINGS CASES ONLY FOST SAVINGS CACES ONLY ENISSIGHS SAVINGS CACE CALY FUEL & COST SAVINGS CACES FUEL & COST SAVINGS	1278 1278 1201 1201 1201	2623 2623 242 241		297 297 757 757	23122400 23122400 17293472 0 17293472 0		-990148 -990148 -897433 -897433	2820944 2820344 2627203 2627208	1830696 1830696 1729771 0 1729771	
	0.207 0.122 0.122 0.356 0.350 0.202 0.1389 0.108 0.108 0.057 0.005 0.005 0.005 0.005 0.005 0.005	0.207 0.177 0.177 0.177 0.177 0.178 0.356 0.356 0.356 0.357 0.357 0.367 0.367 0.369 0.369 0.379 0.067 0.067 0.067 0.065 0.065 0.066 0.078 0.085 0.046 0.085 0.046 0.086	0.207 21.7 0.177 7.1 0.172 8.7 0.356 35.1 0.403 45.3 0.340 40.9 0.202 31.3 0.369 260.4 4 0.057 6.3 0.369 260.4 4 0.057 6.3 0.005 8.2 0.005 8.2 0.005 8.2 0.054 37.5 0.046 207.7 4 0.285 44.2 0.285 44.2 0.286 44.2 0.286 12.0 0.287 12.0 0.286 12.0 0.289 12.0 0.289 13.3 0.090 8.2 0.090 8.2 0.090 8.2 0.090 8.2 0.090 8.2 0.000 8.2	MAILO   SAVIRES   SAVIRES   NAVIRES   Navire	0.207 21.7 40.0 0.007 0.107 7.1 15.7 -0.247 -3 0.126 6.7 18.9 -0.010 -3 0.356 45.3 91.7 -0.274 -14 0.350 46.3 91.7 -0.274 -14 0.350 46.9 91.4 0.227 9 0.202 31.3 72.5 0.120 6 0.359 260.6 499.1 0.272 67 0.052 31.3 72.5 0.103 19 0.005 6.3 33.3 73.7 0.149 11 0.005 7 6.3 32.0 -0.069 -4 0.005 8.2 16.2 -0.069 -4 0.005 9.3 9.3 20.7 0.149 11 0.005 7.0 -0.069 -4 0.005 8.2 16.2 -0.069 -4 0.005 8.2 16.2 -0.069 -4 0.005 7.0 -0.069 -4 0.005 8.2 16.2 0.000 69 0.234 44.2 74.2 0.150 63 0.265 44.2 74.2 0.150 63 0.204 74.2 74.2 0.176 173 0.205 74.3 55.8 0.051 173 0.205 74.2 74.2 0.176 173 0.206 74.2 74.2 0.176 173 0.207 74.2 74.2 0.176 173	0.177	RATIO         SAVILLS         SAVILLS         CAUGO         COOD         2692         664418           0.177         7.1         15.7         -0.247         -35242         449316         9000           0.177         7.1         15.7         -0.247         -35242         449316         9000           0.172         6.7         16.9         -0.010         -2574         301629         901629           0.356         35.1         77.8         0.052         20644         901280         901629           0.403         45.3         91.7         -0.274         -140203         3652220         901280           0.403         46.9         91.4         0.227         99084         305320         901280           0.204         40.9         91.4         0.272         99084         305320         901280           0.176         69.2         20.12         69486         305320         901880         901880           0.176         69.2         10.14         0.227         69486         305320         9004           0.176         69.2         20.14         10.025         116802         116880         901890         90189         90189         901890<	RAILO         SAVILES         FAILO         2000         A000         FAILO         FAILO           0.207         2.1.7         46.0         0.007         2.692         664418         0.389         -           0.177         7.1         15.7         -0.247         -15542         449316         0.485         -           0.122         6.7         16.9         -0.010         -2574         301629         0.245           0.403         35.1         77.8         0.052         20644         901280         0.546           0.403         46.9         91.7         -0.274         -140203         3626220         0.465           0.340         40.9         91.4         0.227         -140203         3626220         0.465           0.240         40.9         91.4         0.227         45460         362620         0.465           0.104         40.9         91.4         0.227         46469         36268         0.463           0.105         40.9         91.1         46940         305320         0.463         0.66446         0.339           0.207         40.9         1.14.6         0.130         36456         1743         0.423         0	0.177         7.11         4.6.0         0.007         2.692         6.4418         0.1369         1.811         0.1412         0.1414	A.A. 1. 1. 1. 1. 1. 2. 1. 1. 2. 1. 2. 1. 2. 1. 2. 1. 2. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.

	07																										
		HSS TOTAL	1	1889619	6196331	5903423	•	5903423	•			<u>.</u>	1		4147	4147	3900	•	3900	0		4147	4147	3900	0	3900	0
		ENISSIONS SAVINGS TONS PER YEAR T UTILITY TO	1	9794866	9794866	9031424	0	9031424	•			TOTAL OTHER FUEL SAVINGS			2197	2197	2130	0	2130			2197	2197			2130	
	CH-E	EHIS TOR PLANT		-3528524	-3598524	-3127991	•	-3127991	0			COAL OT FUEL SA			7804	7804	7028	0	7028	0		7804	7804	7028	0	7028	0
DY -	*** STRATEGY MATCH-E		,	0	0	9	•	9				EOILER FUEL	:		0	0	0	0	0	0		O	0	0	0	0	0
ATIVES STU	15 ***	CAPITAL COST \$000		69238320	69238320	50606736		50606736		UFINARY		10**12 BTU COAL DERIVED DISTILLATE			٥	0	0	0	0	0		0	0	0	0	0	0
COGENERATION TECHNOLOGY ALTERNATIVES STUDY NATIONAL SUBBARY	.و	SAVINGS DOLLARS \$000	;	5963700	5963700	7728539	0	7728589	0	NATIONAL FUEL SAVINGS SURNARY		5 10 CO GAS	1		0	0	0	0	0	0		0	0	0	0	0	0
ON TECHNOL NATIONA	ETROLEUM B	C05T	•							IONAL FUEL	,	FUEL SAVINGS PETROLEUM PETROLEUM DISTILLATE EJILER FUEL			-20083	-20033	-12434	0	-12434	0		-20083	-20093	-12434	0	-12434	0
OGENERATI	T FIRED,P	UTILITY FUEL SAVINGS		9018	6106	6300		630	•	NAT	1	FI PETROLEUN DISTILLATE	 		-425	-425	-17	0	-17	0		-425	-425	-17	0	-17	0
,	B.CICLE,DIRECT FIRED,PETROLEUM B.G.	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU		4147	4147	3900	•	3900	o			NATURAL P GAS D	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		14654	14654	7194	0	7194	0		14654	14654	7194	0	7194	0
VEAU . 1900	HO.23 ADVANCED TECHNOLOGY, CONB	CATEGORY		TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	EMISSICHS SAVINGS CASE ONLY	FUEL 1 COST SAVINGS CASES	FUEL, COST & EMISSION SAVING			CATEGORY		SITE PLUS UTILITY	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE CHLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	INCLUDING COAL FUEL CONVERSION	T014L ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ELISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

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CTAS GENERAL SUMMARY - PROCE NO.24 ADVANCED TECHNOLOGY, COMB.CY		SS LEVEL CLE, DIRECT	SS LEVEL CLE, DIRECT FIRED, COAL DER	• 1	B.G.	*** STRA	*** STRATEGY MATCH-E			!	5
INDUSTRY	FUEL ENERGY SAVINGS RATIO	TOTAL FUEL SAVIESS	UTILITY FUEL SAVINGS	COST RATIO	SAVINGS DOLLARS \$000	COST COST \$000	EMISSIONS SAVINGS RATIO	EMIS TONS PLANT	EMISSIOMS SAVIUTS TONS PER YEAR TO UTILITY TO	TOTAL	ECS SIZE (FLJ)
HO.OI MEAT PACKING	0.207	21.7	48.0	0.007	2692	664418	0.353	-20012	51337	31325	4.32*
HO. 02 BAKING	0.177	7.1	15.7	-0.247	-35242	449316	0.448	-6359	16766	10427	0.16*
HO. 03 MALT BEVERAGE	0.122	8.7	13.9	-0.010	-2574	301629	0.216	-8548	20256	12008	1.32*
HO. 04 HOVEN FABRIC MILL	0.326	35.1	77.8	0.052	20644	901280	0.508	-31164	83275	52111	1.91*
HO.05 SAH MILL	0.403	45.3	91.7	-0.274	-140203	3652220	0.571	-33810	98163	64353	0.20*
NO.06 HEUSPRINT MILL	0.340	40.9	4.16	0.227	99084	305320	0.517	-36203	96292	6v009	69.38
HO. 07 WRITING PAPER MILL	0.234	26.0	59.1	0.134	65486	362665	0.386	-28776	74301	45525	16.07
NO.08 CORRUGATED PAPER	0.176	89.2	505.4	0.103	194028	1084796	9.304	-88047	218524	130476	45.72
HO.09 BOX BOARD	0.202	31.3	72.5	0.126	68869	374924	0.343	-30672	76864	46193	38.46
но. 10 сисорие	0.389	260.4	499.1	0.272	674450	1766361	0.550	-177428	540818	363390	44.88
NO.11 ALUMINA	0.057	6.3	32.0	-0.002	-1029	190581	0.169	-19508	34273	14765	16.51
NO.12 LOW DEMS. POLYETHYL	0.339	59.1	148.6	0.185	118025	645434	0.531	67679-	159056	94107	18.26
NO.13 HI DENS. POLYETHYL	0.317	24.3	53.7	0.174	48974	281577	0.488	-21678	57565	35888	9.29*
NO.14 POLYVINYL CHLORIDE	0.239	33.3	73.7	0.140	59139	468155	0.454	-29846	78782	48935	6.65*
NO.15 STYRENE-BUT. RUB.	0.108	2.0	4.2	0.006	411	58740	0.178	-1876	4463	2586	1.46*
HD.16 HYLCN	0.323	9.3	20.7	0.149	15864	140905	965.0	-8293	22168	13875	3.86*
RO.17 STYPENE	0.005	6.0	7.0	-0.069	95125-	188885	0.005	1669-	7532	541	3.40*
NJ.18 ETHYLENE	0.007	8.2	16.2	-0.042	-168409	1016334	-0.013	-26879	16628	-10251	4.78*
KO.19 PETPOLEUM REFINING	0.052	213.6	293.3	0.001	8427	4003752	0.063	-127375	313958	186583	21.55
1:0.20 TIRES	0.231	25.3	55.8	0.087	35219	419999	0.378	-22813	29693	36880	456.9
NO.23 INTEGRATED STEEL	950.0	207.7	487.4	0.050	531504	4039773	0.067	-193892	521814	327922	99.18
M. 24 GRAY IRON FOUNDRY	0.238	44.6	74.2	0.179	94874	375413	0.415	-23178	79390	56213	17.32
KO.25 COPPER	0.234	37.5	82.6	0.095	55814	624678	0.379	-34375	95446	54071	5.53*
HO. 26 HOTOR VEHICLE	0.204	42.5	93.8	0.051	38905	600769	0.386	-38647	100465	61818	10.09
ALL S CASE S CASE AVINGS SAVIN		0 1280 1280 1280 1280 1280 1280	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			23121376 23121376 17292448 17292448	}	-1081017 -1081017 -979223 -979223	2820843 2820843 2627207 2627207	1739829 1739829 1647987 1647987	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

YEAR : 1990			HATIONAL	HATIONAL SUMMARY	RATIONAL SURMARY	<u>.</u>					
HCED TECHNOLOGY,CO	HB.CYCLE, DIRECT FIRED, COAL DER. B.G	FIRED, CO	AL DER. B.	ē.	**	*** STRATEGY MATCH-E	TCH-E				07
CATEGORY	TOTAL L FUEL SAVINGS S 10**12 BTU 1	UTILITY FUEL SAVINGS 10**12 BTU		COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	ENISSIONS SAVINGS TONS PER YEAR LANT UTILITY TO	SAVING YEAR ITY	S  TOTAL	
			1		1	-					
T01AL ALL	4152	9018		5987533	69236384	•	-3933191	Ť	9794864	5861659	
FUEL SAVINGS CASES ONLY	4152	9018		5987533		84	-3933191	_	994626	5661659	
COST SAVINGS CASES ONLY	3905	8300		7747427		99	-3415424		9031422	5615986	
EHISSIOHS SAVIHSS CASE ONLY	•	0		0		•			0	0	
FUEL & COST SAVINGS CASES	3905	8300		7747427	50604768	89	-3415424		9031422	5615966	
FUEL, COST & EMISSION SAVING	•	•		•		0		•	•	•	
		NATI	HATIOHAL FUEL	SAVINGS SUMMARY	SUMMARY						
		- FU	FUEL SAVINGS	!	10+#12 BTU		!				
CATEGORY	NATURAL PETROLEUM GAS DISTILLATI	ш	PETROLEUM BOILER FUEL	645	COAL DERIVED DISTILLATE	BOILER FUEL	COAL	OTHER SAVINGS	TOTAL FUEL		
		-	1							;	
SITE PLUS UTILITY											
TOTAL ALL	14654	-425	6082	٥	0	-26160	7804	2197	4	4152	
FUEL SAVINGS CASES ONLY	14054	-425	6032	0	0	-26160	7804	2197	3	4152	
COST SAVINGS CASES ONLY	7194	-17	3642	•	0	-16071	7028	2130	35	3905	
EMISSICHS SAVINGS CASE ONLY	0	0	0	0	0	0	0	•		0	
FUEL & COST SAVINGS CASES	7194	-17	3642	•	0	-16071	7028	2130	35	05	
FUCL, COST & EMISSION SAVING	0	0	0	0	0	0	•	•		•	
THELUDING COAL FUEL CONVERSION	•	•	ć	¢	•	•	1			į	
A THE CONTRACT OF THE CONTRACT	•	•	•	•	>	•	700-	1417	₽ :	1040	
FUEL SATINGS LASES UNLY	<b>.</b>	٠.	•	0	0	0	-555	2197	3	1645	
COSE SAVINGS CASES ONLY	<b>o</b> (	0 (	0	0	•	•	915-	2130	2	1654	
Entestine SAVINGS CASE ONLY	0	0	•	0	0	0	0	0		•	
FUEL & COST SAVINGS CASES	0	o ,	0	0	0	•	-476	2130	91	1654	
FUEL, COST # EMISSION SAVING	0	0	0	0	0	•	0	0		0	

CTAS GENERAL SUMMARY - PROCESS LEVEL

HO.25 ADVANCEO TECHNOLGST, COSSINE INDUSTRY SAVINGS RATIO	OGY, COUSTIE FUEL ENERGY SAVINGS PATIO	SAV	CICLE, DIRECT FIRED, COAL (PFB.) OTAL UTLLITY COST SAV UEL FUEL DO THIGS SAVINGS RATIO \$	ED, COALI COST RATIO	PFB) SAVINGS DOLLARS \$300	*** STRA CAPITAL COST \$000	### STRATEGY MATCH-E PITAL EMISSIONS COST SAVINGS - \$000 RATIO P	ראות	EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	NGS  TOTAL	ECS SIZE (FW)
NO.01 HEAT PACKING	0.153	16.0	48.0	0.018	6835	1525567	0.318	-23101	51337	28237	4.35*
NO. 02 BAKING	0.131	5.5	15.7	-0.319	-45593	732801	0.405	-7350	16786	96 %	0.16*
HO.03 HALT BEVERAGE	0.034	6.0	18.9	0.160	42238	646756	0.189	-4777	20256	10479	1.32*
NO.04 HOVEN FABRIC MILL	0.189	20.4	77.8	-0.083	-35049	1961605	0.421	-40145	63275	43130	1.93*
NO.05 SAW NILL	0.144	16.1	91.7	-0.836	-427520	6521471	0.405	-52911	96163	45252	0.20
HO.06 NEWSFRINT MILL	0.280	33.6	4.19	0.281	122615	636096	0.487	-39667	94292	56624 6	9.76
NO.07 KRITING PAPER MILL	0.185	20.6	59.1	0.271	132752	630571	0.3.7	-31961	74301	42340	16.14
NO.08 COFRUGATED PAPER	0.142	71.7	205.4	0.315	591256	2373917	0.285	-96372	218524	122151	45.84
110.09 BOX 50ARD	0.164	25.4	72.5	0.302	173532	832633	0.323	-33425	76864	63440	38.57
NO.10 CHLOPINE	0.280	187.0	459.1	0.278	690908	4814805	0.483	-221456	540818	319352	45.16
HO.11 ALUMINA	0.016	1.8	32.0	0.123	54578	434733	0.139	-22104	34273	12169	16.59
NO.12 LOW DENS. POLYETHYL	0.098	17.0	148.6	0.087	16455	1685981	0.378	-92156	159056	96900	18.38
NO.13 HI DENS. POLYETHYL	0.192	14.7	53.7	0.175	49154	709952	0.409	-27467	57565	30099	9.35*
HO.14 POLYVINYL CHLORIDE	0.189	21.7	73.7	0.174	73538	1102197	165.0	-36634	78782	42147	<b>*69.9</b>
HO.15 STYRENE-EUT. RUB.	0.077	1.5	4.2	90, 104	11877	121544	0.155	-2210	4463	2253	1.47*
RO.16 HYLOH	0.214	6.2	20.7	0.128	13660	333526	0.430	-10123	22168	12045	3.88#
NO.17 STYRENE	0.001	0.2	7.0	0.251	170160	296436	0.001	-7384	7532	148	3.31*
NO. 18 ETHYLENE	0.004	4.5	16.2	0.366	1486317	1445768	-0.016	-28984	16628	-12356	3.57#
HO.19 PETFOLEUM REFIHING	0.040	162.6	293.3	0.361	5327661	7347623	0.053	-157236	313959	156722	21.66
MO.20 TIRES	0.156	17.1	55.8	0.15	64448	1106063	0.330	-27582	26963	32111	6.97#
NO.23 INTEGRATED STEEL	0.028	128.1	487.4	0.027	284997	7362097	0.057	-244447	521814	277367	99.83
NO.24 GRAY IRON FOUNDRY	0.108	16.7	74.2	0.223	124515	987434	0.278	-41732	79390	37658	17.41
NO.25 COPPER	0.158	25.3	82.6	0.189	111262	1421550	0.330	-41450	68446	46997	5.56#
MOTOR VEHICLE	0.137	28.7	93.8	0.110	83233	1716745	0.336	-46687	100465	53778	10.15
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CHL) EMISSIONS SAVINGS CASE CHLY FUEL & COST SAVINGS CASES FUEL.COST & EMISSION SAVING		1	2433		9162909 9162909 9671071 9671071	47197952 47197952 37982128 37982128	i	-1342358 -1342358 -1241953 -1241953	2820843 2820843 2622620 2622620	1478497 1478497 1330669 1380669	

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUTHINRY

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CATEGORY	TOTAL L FUEL SAVINGS S 10**12 BTU 1	UTILITY FUEL SAVINGS 10#*12 BTU	C05T S	COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	TONS PER YEAR UTILITY	물 ;	5  TOTAL
TCTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING	282 282 274 274	9018 9018 8663 8663		32225568 32225558 33199584 33199584	145173168 145173168 127508096 127508096		-4719911 -4719911 -4527454 -4527454			5074939 5074939 4687439 4867439
CATEGORY	HATURAL PETR GAS DIST	ורו	HATIOHAL FUEL SAVINGS SUFFIARY FUEL SAVINGS 10**12 BT UTH PETROLEUM COAL DERI ATE EGILER GAS DISTILL FUEL	SAVINGS SUPPIARY  10**12 BTU  COAL DERIVE GAS DISTILLA	U . ATE	BOILER	COAL	OTHER SAVINGS	TOTAL FUEL	
SITE PLUS UTILITY	73771	1 4					- 194A7	2197		
FUEL SAVINGS CASES ONLY	14654	-4.55	0005	• 0	• •	• •	-19637	2197	2821	
COST SAVINGS CASES OFFE	14621	1425	0,051	0	•	•	-19673	2167	2741	
ENISSIONS SAVINGS CASE ONLY	•	0	0	٥	•	0	0	0	0	
FUEL & COST SAVINGS CASES	14621	-425	6051	0	•	0	-19673	2167	2741	
FUEL, COST & EMISSION SAVING	0	•	0	•	•	0	•	•	•	
INCLUDING COAL FUEL CONVERSION										
1077L ALL	14554	-425	6082	0	•	•	-19687	2197	1282	
FUST SAVINGS CASES ONLY	14654	50%-	6032	0	0	0	-19687	2197	2821	
COST SAVINGS CASES ONLY	146.71	1807	6051	•	•	•	-19673	2167	2741	
ENTSTORS SAVINGS CASE CHEY			0	•		•		9	•	
FIRST R COST SACTION CASES	14671	1 2 1 1	6051		• •	• 0	-19673	2167	2741	
FUEL, COST & EMISSION SAVING		9	0	0	• •	0	0	0	0	

01 VINGS ECS R SIZE TOTAL (1942)	26537 4,49#	7370 0.174	8035 1.374	23582 2.00*	20765 0.20*	47590 72.17	35757 18.74	115311 47.25	41026 39.77	185650 46.87	6111 17.15	25814 19.08	19018 9.69#	33071 6.92*	1722 1.51#	7012 4.034	-61 3.39#	-7496 3.62#	159957 22.29	24951 7.21#	203507103.31	16497 18.08	36375 5.75*	41719 10.49	1081821 937052 1004290
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83275	98163	34292	74301	218524	76864	540618	34273	159056	57565	78782	4463	22168	7532	16628	313956	59693	521614	79390	88446	100465	2820843 2366687 2463564
LANT	-24300	-9415	-12221	-59693	-77398	-48702	-33545	-103213	-35838	-355168	-26162	-133242	-38547	-45710	-2741	-15155	-7593	-24124	-154001	-34742	-318307	-62893	-52072	-53746	902
*** STRATEGY MATCH-E PITAL EMISSIONS COST SAVINGS - \$000 RATIO F	0.299	0.317	0.145	0.230	0.164	0.410	0.303	0.269	0.305	0.281	0.093	0.146	0.259	0.307	0.119	0.250	-0.001	-0.009	0.054	0.256	0.042	0.122	0.255	0.260	•
CAPITAL COST \$5000	1594799	705395	694260	2168495	6680285	901202	605556	252228	680919	5305612	468197	1858166	757378	1167746	129679	358679	309752	1480545	7764397	1172657	7827476	1067937	1502462	1813035	50155872 37592832 38683568
(AFB) SAVINGS DOLLARS \$C00	7331	-51147	34959	-95509	++9165-	107806	123909	595209	179548	356808	46945	-48721	24323	57808	10500	1095	170411	1504942	5388318	59189	107419	02169	71716	25909	931006 6331006 9001269
RED, COALI COST RATIO	0.019	-0.358	0.133	-0.241	-0.961	0.247	0.253	0.324	0.312	0.144	901.0	-0.076	0.087	0.137	0.145	0.010	0.251	0.371	0.365	0.124	0.010	0.124	0.156	0.080	•
CYCLE, INDIRECT FIRED, COAL(AFB) TOTAL UTILITY COST SAVII FUEL FUEL ODL	48.3	15.7	18.9	77.8	91.7	4.16	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	2199
	17.7	3.7	4.2	-0.1	-10.2	27.1	17.7	79.2	20.0	42.7	-1.2	-27.3	3.9	15.3	1.1	1.0	ø. 0	13.5	195.0	11.8	52.7	-6.3	17.5	19.6	507
CGY, CORDINE FUEL ERERGY SAVINGS RATIO	0.169	260.0	0.059	-0.001	-0.090	0.226	0.159	0.157	0.181	0.004	-0.010	-0.157	0.053	0.133	0.056	0.034	0.005	0.011	0.048	0.108	0.012	-0.041	0.109	960.0	
NO.26 ADVANCED TECHNOLOGY, CONDINED CYCLE, FUEL ENERGY TOTAL SAVRISS FUEL RATIO SAVINSS	PO.01 HEAT PACKING	NO.02 BAKINS	HO.03 HALT BEVERAGE	HO.04 KOVEN FABRIC HILL	NO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 WRITING PAPER MILL	NO.08 CORPUGATED PAPER	NO.09 BOX EOARD	NO.10 CHLOFINE	HO.11 ALUHINA	NO.12 LOW DENS. POLYETHYL	MO.13 HI DEMS. POLYETHYL	HO.14 FGLYVINYL CHLORIDE	MO.15 STYPENE-BUT. RUB.	NO.16 WYLCH	KO.17 STYRENE	HO. 18 ETHYLENE	NO.19 PETROLEUM REFINING	HO.20 TTRES	NO.23 INTEGRATED STEEL	NO.24 GPAY IPON FOUNDRY	NO.25 COPPER	EG. 26 MOTOP VEHICLE	SAVINGS CASES CHLY SAVINGS CASES CHLY ICAS SAVINGS CASES CH

	00 '	GENERATIO	N TECHNOLO	TECHNOLOGY ALTERNATIONAL SUBSTARY	COSENERATION TECHNOLOGY ALTEPNATIVES STUDY NATIONAL SURMARY	ر -					
TEAM : 1940 PO.26 ADVANCED TECHNOLDGF,COMBINED CYCLE,INDIRECT FIRED,COALLAFBI	INED CYCLE, IN	DIRECT FI	RED, COALLA	FBJ	R ***	*** STPATEGY MATCH-E	ATCH-E				0
CATEGORY	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BTU	COST S	SAVINGS DOLLARS \$000	CAPITAL COST \$000		E PLANT	MISSIONS TONS PER UTILI	ភិ	S TOTAL	
		1	1	1		!			!		
FOTAL ALL	1848	9019		29801856	154547696	9	-5952309	99854/6 60	999	3842543	
FUEL SAVINGS CASES ONLY	2023	7477		30551536	121374512	2	-4632803	_	939	3513022	
CCST SAVINGS CASES ONLY	1661	7921		31266560	126843940	•	-5006382		83	3614556	
CHISSIONS SAVINGS CASE DRUY	•	0		•		•			0	•	
FUEL # COST SAVINGS CASES	1202	1.77		30649568	119907440	0.	-4614759	59 8113663	1663	3498895	
FUEL, COST & EMISSION SAVING	0	0		9		0		•	•	•	
		NATI	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS	SUMMARY						
CATEGORY	MATURAL PE GAS DI	FUTER FOLEDM PETROLEUM PISTILLATE	FUEL SAVINGS PETROLEUM FETROLEUM DISTILLATE POILER FUEL	10 CO GAS	10**12 BTU COAL DERIVED DISTILLATE	BOTLER	COAL FUEL	OTHER SAVINGS	TOTAL FUEL		
		-	1					-		1	
SITE PLUS UTILITY											
TOTAL ALL	14654	-425	£ 0.82	0	•	0	-20661	2197	18	1848	
FUEL SAVINGS CASES ONLY	14060	-17	5633	0	0	0	-19737	5089	50	2028	
OF SAVINGS CASES CHLY	14554	525-	6003	•	0	0	-20314	2154	6	1997	
ENISSIONS SAVINGS CASE ONLY	0	0	٥	0	0	0	•	0		•	
FUEL & COST SAVINGS CASES	14050	-17	5623	•	0	•	-19726	2076	2021	21	
EL, COST & EMISSION SAVING	၀	0	0	0	•	•	0	0		•	
INCLUDING COAL FUEL CONVERSION											
TOTAL ALL	14654	-425	6032	0	0	0	-20561	2197	91	18+8	
FUEL SAVINGS CASES ONLY	1400	-17	5633	0	0	0	-19737	2089	0,3	2028	
COST SAVINGS CASES ONLY	14554	-425	6028	0	0	٥	-20314	2154	19	1997	
EMISSIONS SAVINGS CASE ONLY	0	0	0	0	0	•	0	0		•	
FUEL & COST SAVINGS CASES	14060	-17	5628	0	0	۰	-19726	2076	2021	2.1	
FUEL, COST & EMISSION SAVING	0	•	0	٥	. 0	0	0		;	; •	
	1	,	١	•	•	•	,	•		,	

01 ECS SIZE (TH)	4.29	0.16*	1.31	1.91	₩02.0	69.19	18.01	45.45	38.24	44.79	16.48	18.19	9.28	99.9	1.46	3.85	3.38	2.83	19.19	26.9	99.08	17.21	5.52	70.0	
NGS  TOTAL	65782	18663	21172	85522	110513	104113 6	81356 1	251550 4	87931 3	594428 4	30386 1	162244 1	19565	82373	4607	23267	5970	15297	328014 1	62904	518712 9	79391	92720	105632 1	0,000,000
EMISSIONS SAVINGS TONS PER YEAR UTILIT TO	51337	16786	20256	83274	98163	36296	74301	218524	76864	540818	34273	159056	57565	78782	6463	22168	7532	16628	313958	56963	521814	79390	98446	100465	2820843 2820843 346725 346725 346725
LANT	14445	1877	916	2248	12350	7822	7055	33017	11067	53610	-3888	3187	1875	3592	144	1099	-1562	-1331	14056	3211	-3103	0	4574	5167	171138 171138 59539 181022 58539 58539
STRATEGY MATCH-E LL EMISSIONS SAVINGS - RATIO P	0.775	0.825	0.408	0.851	966.0	0.912	0.717	0.617	0.684	0.916	0.359	0.925	0.827	0.785	0.336	6+8.0	0.059	0.021	0.121	0.672	0.107	0.611	0.677	0.686	
*** STRA CAPITAL COST \$000	495495	130750	184083	531319	1515035	433779	420950	1312276	449785	2421524	207177	731404	286301	410389	37243	108138	170614	447551	2578989	424253	4973788	410903	518271	719290	ស្រុកស្រុក ស្រុកស្រុកស្រុ
DISTILLATE COST SAVINGS DOLLARS TO \$000	20039	-20454	-16468	-70700	-30249	-31208	-18255	52664	5325	-130040	-47367	-114899	-37870	-46317	-3095	-12143	-45506	-31235	-198929	-39455	-311435	-72049	-52459	08666-	
	0.051	-0.143	-0.063	-0.178	-0.059	-0.072	-0.037	0.014	0.009	-0.052	-0.107	-0.180	-0.135	-0.110	-0.043	-0.114	-0.067	-0.008	-0.013	-0.037	-0.029	-0.129	-0.089	-0.131	
P., PETROLEUN UTILITY C FUEL SAVINGS RAI	48.0	15.7	18.9	77.8	7.16	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	497.4	74.2	82.6	93.8	2623 308 308 308 308 308 308
<u>,</u> ≅	30.8	5.3	5.3	15.0	32.8	25.8	18.7	88.2	29.6	157.2	0.2	26.4	11.1	17.1	1.3	4.8	2.2	28.8	157.4	14.1	89.2	12.9	50.9	23.7	। — — जे के जे क
ARY - PROCES OGY, FUEL CEL FUEL EMEPGY SAVINGS RATIO	0.293	0.133	0.074	0.139	0.292	0.215	0.168	0.174	0.191	0.235	0.005	0.151	0.145	0.148	0.063	0.165	0.012	0.025	0.039	0.129	0.020	0.083	0.130	0.113	
CTAS SEMERAL SUMMARY - FROCESS LEVEL NO.27 ADVANCED TECHNOLOGY, FUEL CELL, LOW T FUEL EMERGY TOTAL SAVINGS RATIO SAVINGS	HO.01 MEAT PACKING	HO.02 BAKING	HO.03 HALT BEVERAGE	NO.04 WOVEN FAERIC MILL	MO.05 SAW HILL	80.06 KEWSPRINT MILL	RO. 07 KRITING PAPER MILL	HO.08 CORRUSATED PAPER	HO.09 EOK EOARD	HO.10 CHLORINE	HO.11 ALUMINA	HO.12 LOW DENS. POLYETHYL	NO.13 HI DEYS. POLYETHYL	13.14 POLYVINYL CHLORIDE	NO.15 STYRENE-BUT, RUB.	ED. 16 HELON	HOLLZ STARENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	HO.23 INTEGRATED STEEL	HO.24 GRAY IRON FOUNDRY	POLOS COPPER	HOLDE MOTOR VEHICLE	SAVINGS CASES CHLY SAVINGS CASES CHLY ICHS SAVINGS CASE OF & COST SAVINGS CASE COST & EMISSICH SAV

- COSENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURMARY

GAS         DISTILLATE         GOILER         GAS         DISTILLATE         BOILER         COAL         OTHER         FUEL           14654         -8210         -13646         0         0         0         7804         2197         2798           14654         -8210         -13646         0         0         0         7804         2197         2798           16654         -8210         -13646         0         0         0         7804         2197         2798           1673         -768         0         0         0         1560         4         541           5783         -6612         -768         0         0         0         9052         1514         2405           807         -1062         -768         0         0         0         4         541           807         -1062         -768         0         0         0         4         541           807         -1062         -768         0         0         6         541         541	DISTILLATE GOILER GAS DISTILLATE FUEL FUEL FUEL GAS DISTILLATE FUEL GAS DISTILLATE FUEL GAS DISTILLATE FUEL GAS DISTILLATE FUEL GAS DISTILLATE FUEL GAS DISTILLATE FUEL GAS DISTILLATE FUEL GAS DISTILLATE FUEL GAS DISTILLATE GAS DISTILLATE FUEL GAS DISTILLATE GAS
FUEL FUEL FUEL FUEL FUEL FUEL FUEL FUEL	FUEL.  554 -8210 -13646 0 0  559 -6210 -13646 0 0  579 -1062 -7327 0 0  5907 -1062 -7327 0 0  5907 -1062 -768 0 0  5907 -1062 -768 0 0
-8210         -13646         0         0         7804         2197           -8210         -13646         0         0         7804         2197           -1062         -769         0         0         7804         2197           -6432         -7327         0         0         9052         1514           -1062         -768         0         0         1560         4           -1062         -768         0         0         1560         4           -1062         -768         0         0         1560         4	-8210 -13646 0 -8210 -13646 0 -1062 -768 0 -6132 -7327 0 -1062 -768 0
-8210     -13646     0     0     7804     2197       -1062     -768     0     0     1560     4       -6432     -7327     0     0     9052     1514       -1062     -768     0     0     1560     4       -1062     -768     0     0     1560     4       -1062     -768     0     0     1560     4	-8210 -13646 0 -1062 -768 0 -6632 -7327 0 -1062 -768 0
-1062     -768     0     0     1560     4       -6432     -7327     0     0     9052     1514       -1062     -768     0     0     1560     4       -1062     -768     0     0     1560     4	-1062 -768 0 -6432 -7327 0 -1062 -768 0 -1062 -768 0
-6432     -7327     0     0     9052     1514       -1062     -768     0     0     1560     4       -1062     -768     0     0     0     1560     4	-6632 -7327 0 -1062 -768 0 -1062 -768 0
-1062 -768 0 0 0 1560 4 -1062 -768 0 0 0 1560 4	-1062 -768 0 -1062 -768 0
-1062 -768 0 0 0 1560 4	-1062 -768 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	18210 -13646 0
-8210 -13646 0 0 0 7864 2197	-1062 -768 0
-8210 -13646 0 0 0 7804 2197 -1062 -768 0 0 0 1560 4	-6632 -7327 0
-8210 -13646 0 0 0 7804 2197 -1062 -768 0 0 0 1560 4 -6632 -7327 0 0 0 9052 1514	
-8210 -13646 0 0 7804 2197 -1062 -768 0 0 0 1560 4 -6632 -7327 0 0 0 9052 1514 -1062 -768 0 0 1560 4	-1062 -768 0

HO.28 ADVANCED TECHNOLOGY, FUEL CEL FUEL ENERGY INDUSTRY SATINGS	L TEMP,COAL UTILITY FUEL SAVINGS	DERIVED DIST COST S DATIO	SAVINGS DOLLARS	CAPITAL 6005T 5000	*** STRATEGY MATCH-E PITAL EMISSIONS COST SAVINGS 5000 RATIO P	LAN I	EMISSIOMS SAVINGS TOMS PER YEAR UTILITY TO	NGS  TOTAL	01 ECS SIZE (MM)
SAVINGS	SAVINGS	RATIO	5	0004	KA110	PLANI	51337	57698	4.28
32.8	48.0	0.018	7001	634714	0.791	1625	16786	18411	0.16*
11.9	18.9	0.003	2249	215203	0.388	1325	20256	21581	1.30
9.41	77.8	-0.239	-94226	699525	0.626	19061-	83275	64213	1.91
32.6	91.7	-0.128	-65289	1792019	0.771	-11270	98163	86893	9.20*
32.0	91.4	-0.076	-32948	551096	0.759	-8057	26296	88234	68.92
39.7	59.1	0.112	54932	504021	0.708	9186	74301	83487	17.84
136.4	205.4	0.080	149858	1556806	0.564	23317	218524	241841	45.15
48.1	72.5	0.094	54160	536911	0.635	8590	76864	85454	37.97
156.8	499.1	-0.111	-275794	3140389	0.728	-59353	540818	481466	44.71
5.8	32.0	-0.031	-35743	253629	0.303	-7759	34273	26515	16.39
56.4	148.6	-0.232	-148553	968164	0.688	-37118	159056	121938	18.19
10.4	53.7	-0.200	-56273	370613	0.633	-11008	57565	46557	9.27
16.2	73.7	-0.170	-71878	529551	0.601	-13913	78782	64868	6.63
2.7	4.2	0.016	1158	42989	0.323	226	4463	4689	1.45
4.5	20.7	-0.183	-19460	140797	0.654	-3355	22168	16312	3.85
2.5	7.0	-0.069	-46650	183342	0.039	-3161	7532	4371	3.37
34.2	16.2	-0.004	-17736	416434	0.018	-2026	16628	14602	2.82
262.0	293.3	0.007	102266	3008386	0.112	20774	313958	334732	19.05
16.4	55.8	-0.125	-50545	539836	0.532	-7890	59693	51802	6.90
85.0	487.4	-0.041	-441940	5781080	0.081	-126624	521814	395191	98.90
12.9	74.2	-0.162	-90367	543963	0.435	-20362	79390	59029	17.21
23.9	82.6	-0.115	-67350	662099	0.533	-12490	88446	75956	5.50
9.93	93.8	-0.160	-12	917454	0.539	-14160	100465	86305	10.05
1044 1044 1044 1044 1044 1044 1044 1044	2623 2623 701 717 717 701		-1273218 -1273218 371624 362745 371624 371624	1 <b>0</b> 0 0 0 0 0 0		-286705 -236705 69777 71402 69777	2820843 2820843 759704 776490 759704	2534138 2534138 829482 847892 829482	

- COGEMERATION TECHNOLOGY ALTERNATIVES STUDY - MATIONAL SUMMARY

F

EAR : 1990 KJ.28 ADVANCED TECHNOLOGY,FUEL	TEr:	OAL DER	IVED DIST		*** ST	*** STRATEGY MATCH-E		0401040	0011740	07
<b>"</b> "	TOTAL UTI FUEL F SAVINGS SAV 10**12 BTU 10*	UTILITY FUEL SAVINGS 10**12 BTU	COST SAVINGS DOLLAR	AVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	ENISSIUMS SAVIMS TONS PER YEAR PLANT UTILITY T	SAVIRGS YEAR TY TOTAL	۲,
,		!	!			,	1		:	-
	3305	9018	1	3165039	76912112	2	-763946	•	Ī	9030920
	3605	9018	•	-3165039	76912112	~ <	-763946 122555	46 9794864	•	9030920
	1961	2754		1852439	23956396	9	325667		_	3429934
	1945	2724		1869459	23651600	. 0	322552			3394644
	1945	2724		1865458	23651600	0	322552	52 3072091		3394644
		NATIO	NATIONAL FUEL SAVINGS SUMMARY	AVINGS SU	HMARY					
;	1	FUE	FUEL SAVINGS	10**	10**12 BTU -	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	;			
NATURI GAS	<u> </u>	PETROLEUM P DISTILLATE	PETROLEUM BOILER FUEL	COAL GAS DI	COAL DERIVED DISTILLATE	BOILER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL FUEL	
	1		; ; ; ; ;	; ; ; ; ;						
-	4454	307	6082	•	-8411	-18074	7804	2197	7,005	
	1+654	-425	6062		-8433	-18074	7804	2197	3805	
•	4912	-17	5693	0	-2613	-8035	3668	1335	1945	
	4912	-17	2700	0	-2642	-8035	3698	1348	1964	
•	4912	-17	5692	0	-2613	-6035	3668	1335	1945	
•	4912	-17	2692	0	-2613	-8035	3668	1335	1945	
		,	,	,		,	1	!		
	0	0	0	0	0	0	-1047	2197	1150	
	0	0	0	0	0	0	-1047	2197	1150	
	0	•	0	0	0	0	-700	1335	635	
	0	0	0	0	0	o	-704	1348	559	
	0	0	0	0	0	0	-700	1335	635	
	0	0	0	0	0	0	-700	1335	635	

E.

CTAS GENERAL SUMMARY - PR NO.29 ADVANCED TECHOLOGY, FUEL FUEL ENE	IARY - PROCESS LEVEL IGY, FUEL CELL, HICH T FUEL ENERGY TOTAL EAVING	_ ₩	P.,PETROL UTILITY	.,PETROLEUM DIST. TILITY COST	SAVINGS	*** STRA CAPITAL	STRATEGY MATCH-E		EHISSIONS SAVINGS	SON	01 ECS
	RATIO S	SAVINGS	FUEL SAVINGS	RATIO	SODO \$000	\$000 \$000	SAVINGS	PLANT	TONS PER YEAR UTILITY	TOTAL	SIZE (MM)
NO.01 NEAT PACKING	0.310	32.5	48.0	0.044	16949	561923	0.651	3909	51337	55246	4.28
HO.02 BAKING	0.156	6.2	15.7	-0.126	-17990	152379	0.636	-2405	16786	14381	0.16*
NO.03 HALT BEVERAGE	0.105	7.4	18.9	-0.033	-8638	202537	0.322	-3545	20256	16715	1.31
HO.04 MOVEN FABRIC MILL	0.264	23.4	77.8	-0.055	-21706	603323	0.697	-13230	83274	70045	1.91
NO.05 SAW MILL	0.428	48.0	91.7	0.037	18095	1659045	6.829	9209-	98163	92087	0.20*
NO.06 NEWSPRINT MILL	0.309	37.1	91.4	0.020	11414	494160	0.731	-12837	36296	83455	69.26
NO.07 WRITING PAPER MILL	0.234	26.0	59.1	0.029	14098	472259	0.577	-8853	74301	95448	18.03
NO.08 CORRUGATED PAPER	0.224	113.4	205.4	0.065	121690	1449752	0.503	-13627	218524	204896	45.49
NO.09 BOX BOARD	0.249	38.5	72.5	0.063	38665	501388	0.556	-5355	76664	71510	38.28
NJ.10 CHLORINE	0.327	218.8	499.1	0.044	109138	2765428	0.737	-62542	540819	478276	44.83
NO.11 ALUMINA	0.037	4.1	32.0	-0.074	-32731	232253	0.273	-11166	34273	23108	16.49
NO.12 LOW DENS. POLYETHYL	0.311	54.3	140.0	-0.014	-6813	831325	0.765	-24879	159056	134178	18.18
110.13 HI DEHS. POLYETHYL	0.259	19.8	53.7	-0.017	1625-	326140	9.674	-9134	57565	48431	9.28
NO.14 POLYVINYL CHLORIDE	0.237	27.3	73.7	-0.019	- 1999	468952	0.631	-12600	78782	18199	6.65
MO.15 STYREHE-BUT. RUB.	0.093	1.8	4.2	-0.018	-1323	40817	0.264	-836	6463	3628	1.46
NO.16 HYLON	0.263	3.6	20.7	-0.015	-1568	124740	0.632	-3468	22168	18680	3.86
NO.17 STYRENE	0.013	2.5	7.0	-0.067	-45615	176655	0.044	-3108	7532	4754	3.38
NO.18 ETHYLENE	0.026	31.0	16.2	-0.006	-23272	462866	0.015	-5528	16628	11100	2.83
NO.19 PETROLEUM REFINING	0.047	194.1	293.3	-0.004	-62159	2620023	960.0	-54185	313958	259773	19.51
RO.20 TIRES	0.192	21.0	55.8	-0.037	-15168	483027	0.535	-9597	59693	96005	6.93
HO.23 INTEGRATED STEEL	0.036	164.1	437.4	-0.003	-32494	5314424	0.088	-92784	521814	429030	60.66
KO.24 GRAY IRON FOUNDRY	0.164	25.4	74.2	-0.045	-25185	459677	965.0	-14980	79390	64411	17.21
NO.25 COPPFR	0.194	31.1	97.28	-0.026	-15007	591104	0.539	-14725	83446	73722	5.52
KO.26 MOTCR VEHICLE	0.169	35.2	93.8	-0.077	-58149	818254	0.546	33	940	29058	10.08
AVI AVI AVI CD CSI	i	1 15 15 - M M	2623 2623 1067 48 1067	'	-51360 -51360 331250 16949 331250	22022400 22022400 7903954 561923 7903954	i	-397962 -397962 -105380 -105350	2920944 2620944 1156299 51337 1156269	2422880 2422880 2422580 1050919 55246 1050919	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

HO.29 ADVANCED TECHOLOGY, FUEL	CELL,HIGH TEMP.,PETROLEUM DIST	IP.,PETROI	LEUM DIST.		*** STRATEGY NATCH-E	TEGY HAT	ICH-E				07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 Bl	COST	SAVINGS DCLLARS \$000	CAPITAL COST \$000		PLANT	115SIONS FONS PER UTILI	\$	S	
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	i	1 1 1	1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
TOTA! A!!	4015	9018		61547	70088240		-11A79AB		0704866	6404877	
FUEL SAVINGS CASES ONLY	R 104	9019		61547	70088240		-1387988			8406577	
COST SAVINS CASES ONLY	2206	4763		135(326	32613120		-544723		_	4760653	
ENISSIONS SAVINGS CASE ONLY	62	92		32489	1077100		74			105897	
FUEL & COST SAVINGS CASES	2206	4763		1350326	32813120		-544723	15	-	4700653	
FUEL, COST & EMISSION SAVING	29	92		32408	1077100		*			105897	
		HAT	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS SI	JIMARY						
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	=======================================	FUEL SAVINGS	1	10**12 BTU	1	:				
CATEGORY	NATURAL PE GAS DI	PETROLEUM DISTILLATE	PETROLEUM BOILER FUEL	6.AS	<u>ല</u>	BOILER FUEL	COAL FUEL	OTHER Savings	TOTAL FUEL		
				!		!			1		
SITE PLUS UTILITY											
TOTAL ALL	14654	-6730	-13910	0	•	0	7804	2197	4015	2	
FUEL SAVINGS CASES ONLY	14654	-6730	-13910	0	0	•	7604	2197	4015	2	
COST SAVINGS CASES ONLY	1351	-3353	-1306	0	0	0	5617	17	2206	90	
ENISSIONS SAVINGS CASE ONLY	61	-81	9:-	•	0	0	114	<b>.</b>	•	62	
FUEL & COST SAVINGS CASES	1351	-3353	-1366	•	0	0	5617	17	2206	90	
FUEL, COST & EMISSION SAVING	61	-61	-36	0	•	•	114	3	•	62	
INCLUDING COAL FUEL CONVERSION											
TOTAL ALL	14654	-6730	-13910	0	0	0	7804	2197	4015	5	
FUEL SAVINGS CASES ONLY	14654	-6730	-13910	0	0	0	7804	2197	4015	15	
COST SAVINGS CASES ONLY	1351	-3353	-1396	0	0	0	5617	17	2206	90	
ENISSIONS SAVINGS CASE ONLY	61	-81	-36	0	•	0	114	*	•	62	
FUEL & COST SAVINGS CASES	1351	-3353	-1366	0	0	0	5617	17	2206	90	
FUEL, COST & EMISSION SAVING	61	-81	- 36	0	0	0	114	4	•	62	

01 ECS SIZE AL (PH)	55114 4.28	49F0 0.16*	18375 1.31	78739 1.90	90412 0.20#	83798 58.68	78834 17.88	229641 45.23	81098 38.04	523838 44.55	28419 16.36	125765 18.19	57093 9.21	80064 6.59	4340 1.45	21678 3.83	3996 3.38	13510 2.82	315259 19.06	60596 6.87	449868 98.23	73892 17.20	89241 5.48	101720 10.00	i wi wi wi ⊸ co ru
EMISSIONS SAVINGS TONS PER YEAR UTILITY TOTAL	51337 5	16786	20256 1	83274 7	98163 9	96292	74301 7	218524 22	76864 8	540818 52	34273 2	159056 12	57565 5	78782 8	6955	22168 2	7532	16628 1	313958 31	9 £6969	521514 44	7 06862	8 9558	100465 10	0843 0843 0843 08570 9156 6570 2370
LANT	3777	174	-281	-4535	-7751	-7493	4533	11118	4224	-16981	-5854	-33291	-472	1282	-123	065-	-3536	-3117	1301	<del>5</del> 06	95612-	-5499	795	1255	383 383 362 362 333
*** STRATEGY MATCH-E PITAL EMISSIONS COST SAVINSS - \$000 RATIO P	0.622	0.725	0.360	0.768	0.603	992.0	699.0	0.535	0.603	0.792	0.325	0.710	0.777	0.742	0.299	9.774	0.036	0.017	0.106	0.622	0.092	0.545	9.626	0.635	i
*** STRAI CAPITAL E COST :	495862	123218	178003	495875	1532014	401891	399522	1261924	433022	2275723	196703	729362	260700	375934	35975	100003	170953	446231	0559852	40204	4748956	405119	25/065	160829	19105968 19105968 1745950 7146670 17453520 7023551
T. SAVINGS DOLLARS \$000	25742	-6809	4877	1666	34984	62202	67397	192932	19639	359740	<del>5</del> 508-	-13577	29663	50378	1626	1066	-44667	-13480	168173	36231	519342	6653	50134	18747	1583347 1583347 1669972 065937 1669972
DER, DIST COST S RATIO	990.0	-0.049	0.019	0.025	0.068	0.046	0.138	0.103	0.120	0.145	-0.018	-0.021	0.106	0.119	0.022	6.000	-0.066	-0.003	0.011	0.075	6,0.0	0.012	0.085	0.025	•
TEMP, COAL UTILITY FUEL SAVTGS	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	62.6	93.8	2623 2623 2603 1000 2603
	32.6	6.9	11.0	36.3	48.0	39.4	38.3	133.6	47.0	276.2	10.7	43.8	29.0	42.7	2.5	10.6	2.5	33.9	255.9	32.6	268.7	34.7	4.64	54.8	1547 1547 1942 645 645 1942 1843
ARY - PROCE CGY, FUEL CE FUEL ENERGY SAVINSS RATIO	0.311	0.223	0.154	0.337	0.428	0.329	0.344	0.264	0.303	0.413	0.097	0.280	0.379	0.371	0.135	0.368	0.013	0.029	0.063	0.293	0.059	0.224	0.305	0.263	
CTAS GENERAL SUTHARY - PROCESS LEVEL NO.30 ADVANCED TECHNOLOGY, FUEL CELL, HIGH FUEL ENERGY TOTAL SAVINSS FUEL RATIO SAVINSS	HO. 01 HEAT PACKING	HO. C2 BAKING	HO.03 MALT BEVERAGE	HO.09 WOVEN FACRIC MILL	KO.05 SAR MILL	KJ. C6 REWSPRINT MILL	HO.07 WRITING PAPER MILL	MO.CO CORRUGATED PAPER	HO.09 DOX EOAPD	HO.10 CHLCRINE	HO.11 ALUMINA	HOLLS TOW DEHS. POLYETHYL	NO.13 HI DENS. FOLYETHYL	80.14 POLYVINYL CHLORIDE	MO.15 STYRENE-BUT. RUB.	HO.16 HYLOH	NO.17 STYPENE	KO. 18 ETHYLERE	HO.19 PLIROLEUM REFIMING	HO.20 TIPES	HO.23 INTEGRATED STEEL	HO.24 SRAY IPON FOUNDRY	HO.25 COPPER	RO.26 HOTOR VEHICLE	AVINGS AVINGS AVINGS CNS SA COST COST

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUMMARY

07	. 4	9358771 9358771 8290320 4092675 8290320 4060366			
	1 - 1		TOTAL	5137 5137 4506 2366 4506 2348	3052 3052 2745 823 2745
	EMISSIONS SAVINGS TONS PER YEAR - PLANT UTLITY T	9794864 9794864 9794864 9464448 3940267 3940267	TOTHER SAVINGS	2197 2197 2140 1372 2140 1359	2197 2197 2140 1372 2140
CH-E	I N	-436090 -436090 -74126 152588 -174126	COAL O	7804 7804 6477 4593 6477 4563	855 855 604 -549
*** STRATEGY MATCH-E		<b>េ ភ</b> ិភ្លីភ្លីជ	BOILER FUEL	-17899 -17899 -8453 -8426 -8426	00000
LS #4#	CAPITAL COST \$000	60410496 60410496 60410496 50602288 23695136 50602288	S SURTHARY 10**12 BTU - COAL DERIVED DISTILLATE	-7276 -7276 -6294 -3121 -6294 -3095	00000
SUITINARY	AVINGS DOLLARS \$000	4874926 4674926 5296666 2605799 5296666 2605799	SAVINGS SU		00000
HATIOHAL SUMHARY DER. DIST.	COST SAVINGS DOLLAR \$000	į	NATIONAL FUEL SAVINGS SUFTHARY FUEL SAVINGS 10**12 BT UM PETROLEUM COAL DERI ATE BOILER GAS DISTILL FUEL	6082 6082 3656 2772 3656 2767	00000
MP. COAL	UTILITY FUEL SAVINGS 10**12 BTU	9018 9018 7770 3536 7770	01E 11L	-425 -425 -17 -17	00000
TELL HIGH TE	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	5137 5137 5137 6506 6506 2348	NATURAL PETR GAS DIST	14654 14654 7196 5179 7196 5179	••••
RATIONAL YEAR : 1990 PIG TO ADVANCED TECHNOLOGY, FILEL CELL, HIGH TEMP, COAL DER, DIST.	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE CMLY FUEL & COST SAVINGS CASES FUEL & COST SAVINGS CASES	CATEGORY	SITE PLUS UTILITY TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSICHS SAVINGS CASE ONLY FUEL L COST SAVINGS CASES FUEL L COST & EMISSION SAVING	INCLUDING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASE

01 ECS SIZE (HH)	4.28#	4 0.16*	8 1.31*	0 1.90*	6 0.20*	1 63.65	2 17.87	4 45.11	3 37.95	8 44.59	6 16.35*	1 18.15	8 9.22#	*65.9 0	3 1.45*	3 3.83*	8 3.37#	3 2.82*	11 19.05	.2 6.87*	3 98.31	1 17.22	11 5.47#	3 9.99#	66 H F H 8
NGS  TOTAL	67796	20674	23%8	90380	98396	106251	92182	284674	99533	589058	34526	153921	65128	93240	5213	2477	5848	17673	372531	71342	477543	68291	105181	11951	3087929 3019639 2535771 2392327 2535771 2535771
EHISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83274	98163	96292	74301	218524	76864	540418	34273	159056	57565	78782	£955	22168	7532	16628	313958	59692	521814	79390	95,589	100465	2820643 2741453 2283960 2053052 2283960 1762146
LANT	16459	3889	3712	7105	233	6566	17881	66150	52669	48240	252	-5135	7562	14459	652	2605	-1684	1045	58573	11650	-44271	-11100	16735	19348	267085 278185 251812 325274 251812 251812
*** STRATEGY MATCH-E PITAL ENISSIONS COST SAVINSS - \$000 RATIO P	0.705	0.888	0.431	0.882	9.874	916.0	0.782	0.663	0.740	168.0	0.395	0.869	0.886	99.0	0.359	0.035	0.052	0.322	0.125	0.732	0.090	905.0	0.738	0.748	1
*** STRA CAPITAL COST \$000	1927275	689028	654337	2382274	5156875	1217676	1238342	3265917	1156300	7323689	610688	2512443	1004804	1492982	125149	436444	301938	770142	6437625	1483960	9484154	1438128	1873997	2366345	55372289 53934160 39412720 41635632 39412720
SAVINGS DOLLARS \$000	-20494	-34045	-9667	-67235	-270145	131681	61886	413526	139999	890695	3231	-21442	32937	55797	-31	9109	-43559	-12402	267505	14489	249648	-73822	49154	3696	
GASIFIER COST RATIO	-0.053	-0.238	-0.037	-0.170	-0.528	0.302	0.202	0.220	0.243	0.189	0.007	-0.034	0.117	0.132	0.000	0.057	-0.064	-0.003	0.018	0.036	0.023	-0.132	0.034	0.005	
TEMP., COAL UTILITY FUEL SAVINSS	48.0	15.7	18.9	77.8	7.16	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.8	20.7	7.0	16.2	293.3	55.8	407.4	74.2	62.6	93.8	2623 2623 2121 1936 2121 2121 1633
ESS LEVEL ELL,HIGH TEP Y TOTAL L FUEL SAVINGS	27.5	9.9	7.5	15.5	7.3	45.4	26.2	114.1	38.8	143.1	4.3	2.7	14.6	26.2	1.8	5.1	1.7	31.0	195.0	21.2	150.3	-8.6	31.4	35.6	944 953 953 708 708
	0.262	0.166	0.106	0.144	0.065	0.378	0.236	0.226	0.250	0.214	0.038	9.015	9.195	0.227	9.0.0	0.177	600.0	n.026	0.048	0.194	0.033	-0.055	0.1%	0.171	
CIAS GENERAL ************************************	HO.01 HEAT PACKING	NO.02 BAKING	1:0.03 HALT BEVERAGE	HO.04 HOVEN FABRIC MILL	HO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 ERITING PAPER HILL	HO.CS CORRUGATED PAPER	NO.09 POX POARD	HO.10 CHLCRINE	HO.11 ALUHINA	HO.12 LOW DEMS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STIRENE-BUT. RUB.	RO.15 NYLCH	MO.17 STIRENE	NO.18 ETHYLENE	HO.19 PETPOLEUM REFIHING	MO.20 TIRES	MO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	HO.25 COPPER	P010P	TOTAL ALL FUEL CAVINGS CASES DRLY COST CAVINGS CASES CRLY ERISSICYG SAVINGS CASE CRLY FUEL & COST SAVINGS CASES FUEL COST & EMISSICH SAVING

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

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YEAR : 1990 NJ.31 ADVANCED TECHNOLOGY,FUEL CELL,HIGH TEMP., COAL GASIFIER	כפרר'אופא זו	EMP., COAL	GASIFIER	ASIFIER	S) 非 来	*** STRATEGY MATCH-E	TCH-E			
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT	COST S	COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIOMS SAVINGS TOMS PER YEAR PLANT UTILITY T	SAVIN YEAR ITY	55  TOTAL
	1	; ; ; ;	!	1		;			!	
FOTAL ALL	3478			7101834	176607632	32	1147717		9794862	10942580
FUEL SAVINGS CASES ONLY	7678	6376		7243339	173851024	24	1168993	_	9642697	10811681
COST SAVINGS CASES ONLY	3114			8365464	133231376	76	1129024	_	8160601	9296826
ENISSIONS SAVINGS CASE ONLY	3187			7025606	142064416	16	1285427		7821922	9107349
FUEL # COST SAVINGS CASES	3114			8365454	133231376	76	1129024	-	8160601	9289626
FUEL, COST & EMISSION SAVING	2826	-		7806936	115052144	55	1213884		7160383	8374266
		HATI	HATICNAL FUEL SAVINGS SUMMARY	SAVINGS S	UFITHARY					
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		FUEL SAVINGS	;	10**12 BTU		į			
CATEGORY	NATURAL PI GAS DI	PETROLEUM DISTILLATE	PETROLEUN BOILER FUEL	GAS D	COAL DERIVED DISTILLATE	BOILER FUEL	COAL	OTHER Savings	TOTAL FUEL	
					!					;
SITE PLUS UTILITY										
	14654	-425	6082	0	0	-17462	-1569	2197	Þ.	3478
FUEL SAVINGS CASES ONLY	14503	-425	6078	0	0	-17314	-1548	2119	m	37.55
COST SAVINGS CASES ONLY	7350	-408	3975	0	0	-6385	-1438	2019	m	3114
THES CASE ONLY	12762	-425	5331	9	<b>C</b> )	-16862	968	1424	•	3187
VINGS CASES	7350	-403	3975	0	0	-8395	-1438	2019	•	114
FUEL, COST & ENISSION SAVING	5835	-403	3401	0	0	-6385	965	1368	Ň	2826
INCLUDING COAL FUEL CONVERSION	Č	Ċ	6	•	•	•	1669	1016	,	4:5
TOTAL TENENTS OF THE	* 00T	<b>.</b>	000	•	<b>-</b>	•	7661	6110	· ·	0.00
FUEL SAVINGS CASES ONLY	1884	0	86/	9	•	•	-1317	2119	<b>~</b> (	565
COST SAVINGS CASES CHLY	1809	0	826	0	0	0	-1585	2019	<b>L</b> O 1	3070
EMISSIONS SAVINGS CASE ONLY	361	0	270	0	0	0	1233	1424	• 1	288
FUEL & COST SAVINGS CASES	1309	0	826	0 (	<b>o</b> (	<b>6</b>	-1585	2019	m	3070
TISSION SAVING	343	٥	253	0	0	0	818	1368	.2	782

01 ECS SIZE (FU)	4.36	0.16#	1.34	1.%	0.20m	28.28	16.37	23.10	25.93	22.91	16.84	18.58	9.49	6.79	1.49	3.94	3.42	2.87	9.59	7.08	28.93	7.68	5.64	10.30	
1655 TOTAL	34435	1942	9656	42048	28617	52775 2	42019 1	138014 2	47877 2	306541 2	11549 1	82899 1	59909	40830	2104	11438	1025	4671	157436 1	30910	271816 2	35859 1	45113	51735 1	1517214 1517214 567226 567226
EHISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16766	20256	83275	98163	96292	74301	218524	76864	540818	34273	159056	57565	78782	4463	22168	7532	16628	313958	59693	521814	79390	9550	100465	2620344 2620644 1006799 1006799
LAT	-16902	-6344	-10600	-41226	-39547	-43517	-32282	-80510	-28987	-234277	-22725	-76157	-27656	-37951	-2360	-10730	-6506	-11957	-156522	-28782	-249999	-43532	-43333	-48730	-1303631 -1303631 -419573 -419573
*** STRATEGY MATCH-E PITAL EHISSIONS COST SAVINGS - COOO RATIO P	0.385	0.341	0.174	0.410	0.520	0.454	0.357	0.322	0.356	0.464	0.132	0.468	0.407	0.379	0.145	905.0	600.0	900.0	0.053	0.317	0.056	0.264	0.317	0.323	1
*** STRA CAPITAL COST \$000	755453	293172	279254	906054	2500435	643655	575106	1678337	596263	4034366	286370	1074232	426430	623108	54634	173974	186357	460315	3292499	629433	6410362	623027	788125	1052701	28563616 26563616 7727746 7727746
GRADE SAVINGS DOLLARS \$000	-2347	-35922	-16730	05565-	-71678	7252	12628	105405	39223	35440	-34333	-15976	-8383	-14579	-2591	-4563	-45918	-22231	-72056	-23503	-109297	-45585	-25296	-71160	-471661 -471661 199948 0 199948
BOILER COST ATIO	-0.006	-0.252	-0.00+	-0.125	-0.140	0.017	0.026	0.056	0.063	0.014	-0.078	-0.025	-0.030	-0.334	-0.036	-0.043	-0.068	-0.005	-0.005	-0.058	-0.010	-0.082	-0.0+3	+60.0	,
COAL DERIVED UTILITY FUEL SAVIES RA	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	97.9	93.8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	26.1	3.7	4.6	21.3	37.5	30.8	22.0	100.2	33.8	183.8	1.9	43.9	16.1	22.2	1.4	0.9	1.6	29.8	174.1	17.1	130.8	16.6	25.3	28.8	920 930 371 0 371
ARY - FPOCESS LEVEL 06Y,STIPLING ENSINE FUEL ENERGY TOTAL SAVINGS FUEL RATIO SAVINGS	0.249	0.092	0.076	0.193	0.334	0.256	0.193	0.198	0.218	0.275	0.018	0.252	0.211	0.193	0.073	0.208	600.0	0.025	0.043	0.157	0.029	0.107	0.158	0.138	
CTAS GENERAL SUMMARY - FPOC NO.32 AGVANCED TECHNOLOGY,STIPLI FUEL ENERA INDUSTRY SAVINGS RATIO	HO. 01 MEAT PACKING	HO. 92 BAKIHS	NO.03 MALT BEVERAGE	HO.04 WOVEN FABRIC MILL	HO.05 SAN MILL	NO.05 REUSPPINT MILL	KO.07 WRITING PAPER HILL	NO.08 CORRUGATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	HO.11 ALCHINA	HO.12 LOH DEHS. FOLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STAPENE-CUT, PUB.	RO.16 HYLCH	HO.17 STYFENE	NO.18 ETHYLENE	NO.19 PETPOLEUM REFINING	HO.20 TIRES	HO.23 INTEGRATED STEEL	NO.24 GRAY IRCH FOUNDRY	NO.25 COPPER	KO.26 MOTOR VEHICLE	ALL 3S CASES OHLY 3S CASES OHLY SAVINGS CASE OF T SAVINGS CASE E ENISSICH SAV

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NO.32 ADVANCED TECHNOLOGY, STIRLING ENGINE, COAL DERIVED BOILER GRADE	LING ENGINE, COA	AL DERIV	ED BOILER	GRADE	E ***	*** STRATEGY MATCH-E	TCH-E				•
CATEGGRY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 104412 BI	C05T	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	ENISSICHS SAVINGS TONS PER YEAR IT UTILITY TO	SAVING YEAR ITY	S TOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CHLY ENISSIGNS SAVINGS CASE ONLY		90106	}	' '	89695248 89695248 37299744	ं कुंब्दिः अ	-4527722 -4527722 -2100863	1		5267128 5267128 5857929	
FUEL, COST & EMISSION SAVING	0 740	KAT I	495 966222 372' 0 0 HATIOHAL FUEL SAVINGS SUMMAR?	966222 0 SAVINGS S	3/299/44 0 UMETAR?	i o	0			676/697	
CATEGORY	HATURAL PETROLEUM PETROLEUM GAS DISTILLATE EOILER FUEL	PETROLEUM DISTILLATE	FUEL SAVINGS PETROLEUM E EOILER FUEL	10 50 GAS	10**12 BTU COAL DERIVED AS DISTILLATE	BOTLER	COAL	OTHER SAVINGS	TOTAL	;	
SITE PLUS UTILITY	14654	-425	6082	•	0	-26946	7804	2197	33	3366	
FUEL SAVINGS CASES ONLY	14654	-425	6032	•	0	-26946	7804	2197	33	3366	
COST SAVINGS CASES ONLY	1245	0	1075	•	0	-5898	5324	0	17	1746	
EMISSIONS SAVINGS CASE ONLY	0 701	0 0	0 25 6 7	0 0	0 0	0 60	0 2013	0 0	Ç	0 13%	
FUEL, COST & EMISSION SAVING	0	• •		•		9		• •	•		
INCLUDING COAL FUEL CONVERSION TOTAL ALL	0	0	0	0	0	•	-1674	2197	<b>.</b>	523	
FUEL SAVINGS CASES ONLY	0	0	0	0	0	0	-1674	2197	2	23	
COST SAVINGS CASES ONLY	0	•	0	j	0	0	212	•	2	212	
EMISSIONS SAVINGS CASE ONLY	0	0	0	0	0	0	0	0		•	
FUEL & COST SAVINGS CASES	0	0	0	0	0	0	212	0	~	212	
FUEL, COST & EMISSION SAVING	0	0	0	0	•	•	•	0		•	

O1 ECS : SIZE (PM)	4 4.43	9 0.17*	3 1.37	4 2.00	4 0.21	3 28.79	3 18.67	9 23.45	6 26.33	4 23.33	9 17.12	9 18.93	5 9.67	8 6.92	1.52	8 4.02	5 3.35	7 2.54	3 19.62	5 7.21	6 29.45	17.93	5.75	10.49	ା ଫୁଫ୍ଟର ଦର
INSS  TOTAL	3196	501	6893	31854	41174	44103	35993	121269	42176	256204	6149	67939	23795	31998	1510	8678	685	-11117	67373	24175	227349	28694	34920	•	1171974 1163624 1163923 1093923 11685779
EHISSICHS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83275	98163	26296	74 301	218524	76864	540818	34273	159056	57565	78782	4463	22168	7532	16628	313958	59693	521814	79390	9558	100465	2020644 2706571 2622620 2503347
LANT	-19353	-11767	-13363	-51451	-56989	-52104	-38318	-97255	-34688	-284614	-26124	-91217	-33770	-46784	-2953	-13289	-6847	-27745	-246585	-35517	-294465	-50696	-53527	-59401	-1648873 -1622749 -1528696 -1502572
*** STRATEGY MATCH-E PITAL EHISSICMS COST SAVINGS - \$000 RATIO P	0.361	0.216	921.0	0.311	0.366	0.380	0.305	0.283	0.314	0.387	0.093	0.383	6.324	0.297	0.104	6.317	900.0	-0.014	0.023	0.248	0.047	0.212	0.245	0.256	i
*** STRA CAPITAL CCST \$000	1138496	454860	504977	1456656	4680910	781350	737418	2400752	755044	5065358	369969	1359985	585815	879546	95285	263816	271385	1134741	1600025	690581	1178091	806284	1139635	1449457	0 35044052 3301464 3301466 35044056
SAVINGS COLLARS \$000	65025	-31636	45203	-20435	-258651	87642	126502	570707	176190	448218	48266	87549	41177	63343	12162	10517	174476	1543473	5417895	03809	127288	115237	101048	69763	9073294 9025028 9384015 9335749
COST	0.147	-0.222	0.172	-0.052	-0.506	0.201	0.258	0.304	0.306	0.181	0.109	0.137	0.147	0.150	0.168	0.099	0.257	0.380	0.367	0.149	0.012	0.207	0.172	0.092	
COALCAFB) UTILITY FUEL SAVINSS	48.0	15.7	18.9	77.8	7.16	91.4	59.1	205.4	72.5	1.665	32.0	143.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	4.784	74.2	95.6	93.8	2623 2623 2438 2438
SS LEVEL 3 ENSINE,C 101AL FUEL SAVINGS	4.45	0.5	2.3	10.0	17.1	21.7	16.9	83.8	28.3	132.0	-1.7	28.1	9.5	12.6	0.7	3.5	1.4	7.6	59.3	9.6	4.48	9.2	14.0	17.3	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
DANY - FPOCE COY,STIPLIN FUEL ENEPSY SAVINGS RATIO	0.233	90000	0.032	0.093	0.152	0.181	0.152	0.166	0.183	0.197	-0.015	0.161	0.154	0.109	0.037	0.111	0.007	900.0	0.015	630.0	0.019	0.060	0.083	0.083	
CTAS GLHEPAL SURBAPY - FPOCESS LEVEL HO.33 ADVANCED TECHNOLOSY,STIPLINS ENSINE FUEL ENEPSY TOTAL INDUSTRY SAVINGS FUEL RATIO SAVINGS	HO. OI MEAT PACKING	HO. OZ BAKING	HO.03 MALT PEVERAGE	NO.04 HOVEN FZERIC HILL	HO.05 SAW MILL	KO.06 NEUSPRINT MILL	RO.07 ERITING PAPER HILL	HO. 03 CORRUGATED PAPER	NO.09 BOX BOAPD	HO.10 CHLORINE	ho.11 ALPHINA	MO.12 LOW DEMS. FOLYETHYL	RO.13 HI DERS. FOLYETHYL	HO.14 POLYVINIL CHLOPIDE	NO.15 STIRENE-BUT, RUB.	NO.16 HYLOH	KO.17 STYRENE	HO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	HO.23 INTEGRATED STEEL	HO.24 GRAY IROH FOURDRY	NO.25 COPPER	NO.26 POTOR VEHICLE	TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES CHLY ENISSICHS SAVINGS CASE CHLY FUEL A COST SAVINGS CASES FUEL, COST SAVINGS CASES

01 ECS SIZE (FU)	4.36	0.16#	1.34	1.%	0.20m	28.28	16.37	23.10	25.93	22.91	16.84	18.58	9.49	6.79	1.49	3.94	3.42	2.87	9.59	7.08	26.93	7.68	5.64	10.30	
1655 TOTAL	34435	1942	9656	42048	28617	52775 2	42019 1	138014 2	47877 2	306541 2	11549 1	82899 1	59909	40830	2104	11438	1025	4671	157436 1	30910	271816 2	35859 1	45113	51735 1	1517214 1517214 567226 567226
EHISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16766	20256	83275	98163	36295	74301	218524	76864	540818	34273	159056	57565	78782	4463	22168	7532	16628	313958	59693	521814	79390	9550	100465	2620344 2620644 1006799 1006799
LAT	-16902	-6344	-10600	-41226	-39547	-43517	-32282	-80510	-28987	-234277	-22725	-76157	-27656	-37951	-2360	-10730	-6506	-11957	-156522	-28782	-249999	-43532	-43333	-48730	-1303631 -1303631 -419573 -419573
*** STRATEGY MATCH-E PITAL EHISSIONS COST SAVINGS - COOO RATIO P	0.385	0.341	0.174	0.410	0.520	0.454	0.357	0.322	0.356	0.464	0.132	0.468	0.407	0.379	0.145	905.0	600.0	900.0	0.053	0.317	0.056	0.264	0.317	0.323	1
*** STRA CAPITAL COST \$000	755453	293172	279254	906054	2500435	643655	575106	1678337	596263	4034366	286370	1074232	426430	623108	54634	173974	186357	460315	3292499	629433	6410362	623027	788125	1052701	28563616 26563616 7727746 7727746
GRADE SAVINGS DOLLARS \$000	-2347	-35922	-16730	05565-	-71678	7252	12628	105405	39223	35440	-34333	-15976	-8383	-14579	-2591	-4563	-45918	-22231	-72056	-23503	-109297	-45585	-25296	-71160	-471661 -471661 199948 0 199948
BOILER COST ATIO	-0.006	-0.252	-0.00+	-0.125	-0.140	0.017	0.026	0.056	0.063	0.014	-0.078	-0.025	-0.030	-0.334	-0.036	-0.043	-0.068	-0.005	-0.005	-0.058	-0.010	-0.082	-0.0+3	+60.0	,
COAL DERIVED UTILITY FUEL SAVIES RA	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	97.9	93.8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	26.1	3.7	4.5	21.3	37.5	30.8	22.0	100.2	33.8	183.8	1.9	43.9	16.1	22.2	1.4	0.9	1.6	29.8	174.1	17.1	130.8	16.6	25.3	28.8	920 930 371 0 371
ARY - FPOCESS LEVEL 06Y,STIPLING ENSINE FUEL ENERGY TOTAL SAVINGS FUEL RATIO SAVINGS	0.249	0.092	0.076	0.193	0.334	0.256	0.193	0.198	0.218	0.275	0.018	0.252	0.211	0.193	0.073	0.208	600.0	0.025	0.043	0.157	0.029	0.107	0.158	0.138	
CTAS GENERAL SUMMARY - FPOC NO.32 AGVANCED TECHNOLOGY,STIPLI FUEL ENERA INDUSTRY SAVINGS RATIO	HO. 01 MEAT PACKING	HO. 92 BAKIHS	NO.03 MALT BEVERAGE	HO.04 WOVEN FABRIC MILL	HO.05 SAN MILL	NO.05 REUSPPINT MILL	KO.07 WRITING PAPER HILL	NO.08 CORRUGATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	HO.11 ALCHINA	HO.12 LOH DEHS. FOLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STAPENE-CUT, PUB.	RO.16 HYLCH	HO.17 STYFENE	NO.18 ETHYLENE	NO.19 PETPOLEUM REFINING	HO.20 TIRES	HO.23 INTEGRATED STEEL	NO.24 GRAY IRCH FOUNDRY	NO.25 COPPER	KO.26 MOTOR VEHICLE	ALL 3S CASES OHLY 3S CASES OHLY SAVINGS CASE OF T SAVINGS CASE E ENISSICH SAV

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NO.32 ADVANCED TECHNOLOGY, STIRLING ENGINE, COAL DERIVED BOILER GRADE	LING ENGINE, COA	AL DERIV	ED BOILER	GRADE	E ***	*** STRATEGY MATCH-E	TCH-E				•
CATEGGRY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 104412 BI	C05T	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	ENISSICHS SAVINGS TONS PER YEAR IT UTILITY TO	SAVING YEAR ITY	S TOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CHLY ENISSIGNS SAVINGS CASE ONLY		90106	}	' '	89695248 89695248 37299744	ं कुंब्दिः अ	-4527722 -4527722 -2100863	1		5267128 5267128 5857929	
FUEL, COST & EMISSION SAVING	0 740	KAT I	495 966222 372' 0 0 HATIOHAL FUEL SAVINGS SUMMAR?	966222 0 SAVINGS S	3/299/44 0 UMETAR?	i o	0			676/697	
CATEGORY	HATURAL PETROLEUM PETROLEUM GAS DISTILLATE EOILER FUEL	PETROLEUM DISTILLATE	FUEL SAVINGS PETROLEUM E EOILER FUEL	10 50 GAS	10**12 BTU COAL DERIVED AS DISTILLATE	BOTLER	COAL	OTHER SAVINGS	TOTAL	;	
SITE PLUS UTILITY	14654	-425	6082	•	0	-26946	7804	2197	33	3366	
FUEL SAVINGS CASES ONLY	14654	-425	6032	•	0	-26946	7804	2197	33	3366	
COST SAVINGS CASES ONLY	1245	0	1075	•	0	-5898	5324	0	17	1746	
EMISSIONS SAVINGS CASE ONLY	0 701	0 0	0 25 0 1	0 0	0 0	0 60	0 2013	0 0	Ç	0 13%	
FUEL, COST & EMISSION SAVING	0	• •		•		9		• •	•		
INCLUDING COAL FUEL CONVERSION TOTAL ALL	0	0	0	0	0	•	-1674	2197	<b>.</b>	523	
FUEL SAVINGS CASES ONLY	0	0	0	0	0	0	-1674	2197	2	23	
COST SAVINGS CASES ONLY	0	•	0	j	0	0	212	•	2	212	
EMISSIONS SAVINGS CASE ONLY	0	0	0	0	0	0	0	0		•	
FUEL & COST SAVINGS CASES	0	0	0	0	0	0	212	0	~	212	
FUEL, COST & EMISSION SAVING	0	0	0	0	•	•	•	0		•	

O1 ECS : SIZE (PM)	4 4.43	9 0.17*	3 1.37	4 2.00	4 0.21	3 28.79	3 18.67	9 23.45	6 26.33	4 23.33	9 17.12	9 18.93	5 9.67	8 6.92	1.52	8 4.02	5 3.35	7 2.54	3 19.62	5 7.21	6 29.45	17.93	5.75	10.49	ା ଫୁଫ୍ଟର ଦର
INSS  TOTAL	3196	501	6893	31854	41174	44103	35993	121269	42176	256204	6149	67939	23795	31998	1510	8678	685	-11117	67373	24175	227349	28694	34920	•	1171974 1163624 1163923 1093923 11685779
EHISSICHS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83275	98163	26296	74 301	218524	76864	540818	34273	159056	57565	78782	4463	22168	7532	16628	313958	59693	521814	79390	9558	100465	2020644 2706571 2622620 2503347
LANT	-19353	-11767	-13363	-51451	-56989	-52104	-38318	-97255	-34688	-284614	-26124	-91217	-33770	-46784	-2953	-13289	-6847	-27745	-246585	-35517	-294465	-50696	-53527	-59401	-1648873 -1622749 -1528696 -1502572
*** STRATEGY MATCH-E PITAL EHISSICMS COST SAVINGS - \$000 RATIO P	0.361	0.216	921.0	0.311	0.366	0.380	0.305	0.283	0.314	0.387	0.093	0.383	6.324	0.297	0.104	6.317	900.0	-0.014	0.023	0.248	0.047	0.212	0.245	0.256	i
*** STRA CAPITAL CCST \$000	1138496	454860	504977	1456656	4680910	781350	737418	2400752	755044	5065358	369969	1359985	585815	879546	95285	263816	271385	1134741	1600025	690581	1178091	806284	1139635	1449457	0 35044052 3301464 3301466 35044056
SAVINGS COLLARS \$000	65025	-31636	45203	-20435	-258651	87642	126502	570707	176190	448218	48266	87549	41177	63343	12162	10517	174476	1543473	5417895	03809	127288	115237	101048	69763	9073294 9025028 9384015 9335749
COST	0.147	-0.222	0.172	-0.052	-0.506	0.201	0.258	0.304	0.306	0.181	0.109	0.137	0.147	0.150	0.168	0.099	0.257	0.380	0.367	0.149	0.012	0.207	0.172	0.092	
COALCAFB) UTILITY FUEL SAVINSS	48.0	15.7	18.9	77.8	7.16	91.4	59.1	205.4	72.5	1.665	32.0	143.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	4.784	74.2	95.6	93.8	2623 2623 2438 2438 0
SS LEVEL 3 ENSINE,C 101AL FUEL SAVINGS	4.45	0.5	2.3	10.0	17.1	21.7	16.9	83.8	28.3	132.0	-1.7	28.1	9.5	12.6	0.7	3.5	1.4	7.6	59.3	9.6	4.48	9.2	14.0	17.3	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
DANY - FPOCE COY,STIPLIN FUEL ENEPSY SAVINGS RATIO	0.233	90000	0.032	0.093	0.152	0.181	0.152	0.166	0.183	0.197	-0.015	0.161	0.154	0.109	0.037	0.111	0.007	900.0	0.015	630.0	0.019	0.060	0.083	0.083	
CTAS GLHEPAL SURBAPY - FPOCESS LEVEL HO.33 ADVANCED TECHNOLOSY,STIPLINS ENSINE FUEL ENEPSY TOTAL INDUSTRY SAVINGS FUEL RATIO SAVINGS	HO. OI MEAT PACKING	HO. OZ BAKING	HO.03 MALT PEVERAGE	NO.04 HOVEN FZERIC HILL	HO.05 SAW MILL	KO.06 NEUSPRINT MILL	RO.07 ERITING PAPER HILL	HO. 03 CORRUGATED PAPER	NO.09 BOX BOAPD	HO.10 CHLORINE	ho.11 ALPHINA	MO.12 LOW DEMS. FOLYETHYL	RO.13 HI DERS. FOLYETHYL	HO.14 POLYVINAL CHLOPIDE	NO.15 STIRENE-BUT, RUB.	NO.16 HYLOH	KO.17 STYRENE	HO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	HO.23 INTEGRATED STEEL	HO.24 GRAY IROH FOURDRY	NO.25 COPPER	NO.26 POTOR VEHICLE	TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES CHLY ENISSICHS SAVINGS CASE CHLY FUEL A COST SAVINGS CASES FUEL, COST SAVINGS CASES

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY -

TOTAL U FUEL SAVINGS S C**12 BTU 1	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	C05T	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	HISSIONS TONS PER UTILI	SAVIRGS SEAR TY TOTAL
2115	9018	1	31705296	123451936		-5659	792 9794566	566 4135062 756 4050624
2063	8663		32300530	110815520		-5429	9067156 955	908 3985462
0	0 ;		0	0				
0.50 0.00	0331		31806800 0	0 6 9 8 2 2 4 9 0		-5155		0 3901065 867
	NATIO	MAL FUEL L SAVING	S SOUTHER S	ָ a		}	·	14101
GAS DIS		FUEL	CAS		OTLER	COAL	OTHER SAVINGS	FUEL
12456	707	4 6 6	c	c	c	10102-	2197	2115
14231	-17	56.05				-19964	2197	2133
14621	1417	6051	0	•	0	-20352	2167	2063
•	0	۰	0	0	0	0	0	0
14198	-17	5655	0	•	0	-19923	2167	2000
ပ	0	•	•	0	0	0	•	•
14654	-425	6082	0	0	0	-20303	2197	2115
14231	-17	5695	0	0	0	+9561-	2197	2133
14621	-425	6051	0	0	0	-20352	2167	2063
	0	c	•	0	•	•	0	0
14193	-17	5655	•	0	0	-19923	2167	2080
0	0	0	0	o	0	0	•	ů
The state of the s	2055 2053 2053 2050 0 2050 0 2050 14654 14654 14654 14654 14654 14654 14654 14654 14654 16651 16651	33 89 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	33 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	\$ 9018 31705296 \$ 6667 31205206 0 0331 31800800 0 0331 31800800 0 0331 31800800 0 0331 81800800 0 0331 81800800 0 0331 81800800 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Second   S	See	Se687   31705296   123451936   317055200   119618656   312055200   119618656   31806800   1106185520   0	Second   S

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY -

TOTAL U FUEL SAVINGS S C**12 BTU 1	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	C05T	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	HISSIONS TONS PER UTILI	SAVIRGS SEAR TY TOTAL
2115	9018	1	31705296	123451936		-5659	792 9794566	566 4135062 756 4050624
2063	8663		32300530	110815520		-5429	9067156 955	908 3985462
0	0 ;		0	0				
0.50 0.00	0331		31806800 0	0 6 9 8 2 2 4 9 0		-5155		0 3901065 867
	NATIO	MAL FUEL L SAVING	S SOUTHER S	ָ a		}	·	14101
GAS DIS		FUEL	CAS		OTLER	COAL	OTHER SAVINGS	FUEL
12456	707	4 6 6	c	c	c	10102-	2197	2115
14231	-17	56.05				-19964	2197	2133
14621	1417	6051	0	•	0	-20352	2167	2063
•	0	۰	0	0	0	0	0	0
14198	-17	5655	0	•	0	-19923	2167	2000
ပ	0	•	•	0	0	0	•	•
14654	-425	6082	0	0	0	-20303	2197	2115
14231	-17	5695	0	0	0	+9561-	2197	2133
14621	-425	6051	0	0	0	-20352	2167	2063
	0	c	•	0	•	•	0	0
14193	-17	5655	•	0	0	-19923	2167	2080
0	0	0	0	o	0	0	•	ů
The state of the s	2055 2053 2053 2050 0 2050 0 2050 14654 14654 14654 14654 14654 14654 14654 14654 14654 16651 16651	33 89 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	33 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	\$ 9018 31705296 \$ 6667 31205206 0 0331 31800800 0 0331 31800800 0 0331 31800800 0 0331 81800800 0 0331 81800800 0 0331 81800800 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Second   S	See	Se687   31705296   123451936   317055200   119618656   312055200   119618656   31806800   1106185520   0	Second   S

OI ECS SIZE (MM)	4.36	0.16*	1.32	1.98	0.20*	70.92	17.98	45.49	38.26	46.31	16.43	18.96	9.56	6.80	1.45	3.98	3.41	3.91	21.62	6.97	67.83	17.86	5.56	10.16	
NGS TOTAL	24208	1936	14188	-4103	-8411	-5813	26322	154454	39831	4780	18486	-28317	9	8065	3078	-310	1370	-1066	196026	23057	26225	-2826	32092	34817	558149 566863 157532 0 157532
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83274	98163	96292	74301	218524	76864	540818	34273	159056	57565	78782	4463	22168	7532	16628	313958	59693	521814	79390	9558	100465	2820843 1066741 222987 222987 0
LANT	-27129	-14850	-6068	-87377	-106574	-102105	-47980	-64070	-37033	-536039	-15788	-167373	-57505	-70717	-1385	-22477	-6162	-17694	-117932	-36635	-495589	-82216	-56355	-65648	-2262695 -499878 -65455 -65455
STRATEGY MATCH-E IL EMISSIONS - SAVINGS - RATIO P	0.273	0.083	0.255	-0.040	-0.075	-0.050	0.223	0.360	0.296	0.007	0.211	-0.160	0.001	0.075	0.212	-0.011	0.012	-0.001	990.0	0.237	0.005	-0.021	0.225	0.217	i
*** STRA' CAPITAL COST \$000	1330575	308142	410349	1633135	2862851	1184556	952722	2783130	659126	6898442	463295	2186273	811337	1124873	78188	320466	23223	916678	7616923	1060849	11639563	1215894	1308456	1823374	50263856 19948432 2861318 0 2861318
DE SAVINGS DOLLARS \$000	-101555	-72410	-2067	-339805	-424098	-323731	-87251	150519	-21383	-1665074	-8789	-62669	-186380	-214300	1062	-74215	-47050	-101763	-311063	-93486	-1797695	-285562	-123732	-212507	-7002229 -959065 151531 151561
BOILER GRADE COST SA D RATIO	-0.261	-0.507	-0.008	-0.857	-0.629	-0.742	-0.178	0.080	-0.037	-0.671	-0.020	-1.032	-0.664	-0.507	0.015	969.0-	-0.069	-0.025	-0.021	-0.231	-0.169	-0.512	-0.210	-0.280	•
DERIVED BOUTILITY FUEL SAVINGS	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	2623
	12.0	7.4-	11.7	-42.6	-55.3	-51.7	3.5	123.1	22.6	-229.0	11.6	-110.1	-25.2	-23.2	2.7	-10.2	2.1	21.5	227.5	6.3	-208.2	-37.9	7.2	5.4	ี เกิบ เทษา
IARY - PROCE COSY, THERATO FUEL ENERGY SAVINGS RATIO	0.114	-0.117	0.165	-0.395	-0.492	-0.431	0.032	0.243	0.146	-0.342	0.104	-0.631	-0.330	-0.201	0.144	-0.354	0.011	0.018	0.056	0.057	950.0-	-0.239	0.045	920.0	
CTAS GEHERAL SUMHARY - PROCESS LEVEL NO.34 ADVANCED TECHNOLOSY,THERMIONICS,COAL FUEL ENERGY TOTAL INDUSIRY SAVINGS FL.L RATIO SAVINGS	NO.01 MEAT PACKING	BO.02 BAKIN	HO.03 MALT BEVERAGE	NO.04 WOVEN FABRIC MILL	HO.05 SAW MIS.L	HO.OS NEWSPRINT MILL	HO.07 WRITING PAPER MILL	HO.08 CORRUGATED PAPER	NO.09 BOX BUARD	NO.10 CHLORINE	HO.11 ALUMINA	12 LOW DENS, POLYETHYL	HO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STYRENE-BUT. RUB.	HO.16 HYLON	HO.17 STRENE	HO.13 ETHYLENE	NO.19 PETROLEUM REFINING	HO.20 TIRES	NO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 COPPER	OR VEHI	i 5 i >

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

YFAR : 1990			4:01.41	MAILUNAL SUINIAN							
NO.34 AUVANCED TECHNOLOGY,THERMIUNICS,COAL DERIVED BOILER GRADE	1IUNICS, COAL	DERIVED E	SOILER GRAD	)E	TS ***	*** STRATEGY MATCH-E	TCH-E				07
	<b>∢</b> ⊸ Ω	UTILITY FUEL SAVINGS 10**12 Bl	1500	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	·	5  TOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES GNLY EMITTONS SAVINGS CASE ONLY FCOST SAVINGS CASES FCOST & EMISSION SAVING	-1303 -1303 1468 516 516 516 516	9018 3671 3671 360 860 860	; ·	-23690800 -3431493 620353 620353	157368688 68712592 11756047 11756047	: 88 57 70 0	-7926708 -2058901 -268610 -268610	0.4	4 W O O O O	1868156 2020841 646270 646270	
		HAT.	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS SU	JMITARY						
CATEGORY	NATURAL PI GAS D	PETROLEUM DISTILLATE	FUEL SAVINGS PETROLEUM E BOILER FUEL	GAS CO	COAL DERIVED DISTILLATE	BOILER	COAL FUEL	OTHER SAVINGS	FUEL		
SITE PLUS UTILITY	7597	1			0	-31615	7804		-1303	m	
FUEL SAVINGS CASES ONLY	12567	-425	5160	0	0	-21974	4748	1392	1468	•	
COST SAVINGS CASES ONLY	635	-17	400	0	0 (	-1626	1111	12	516	۰.	
THISSIONS SAVINGS CASE ONLY	0 21.7	0 -1.7	0 00 7	0 6	<b>5</b> C	0 -1424	) 	2	7. T	<b>-</b>	
FUEL, COST & FILISSION SAVING		. 0	20	0	0		0	0			
INCLUDING COAL FUEL CONVERSION											
	0	0	0	0	0	0	-8344	2197	-6147	^	
FUEL SAVINGS CASES ONLY	0	0	0	0	c	0	-1927	1392	-535	ıń	
COST SAVINGS CASES ONLY	0	0	٥	0	0	0	544	12	256	۰.	
ENISSIONS SAVINGS CAT Y	0	0	0	0	0	0	0	0		0	
NGS 1	0	0	0	0	0	0	552	12	256	•	
FULL, COST & EMISSICH SAVING	0	0	0	0	C	0	0	٥			

01 ECS SIZE (FW)	4.38	0.16*	1.34*	1.97	0.20*	70.55	18.21	46.07	38.75	45.66	15.64	18.60	9.46	6.78	1.48#	3.95	3.44	3.95	22.07	7.00	67.23	17.64	5.59	10.19		
INGS TOTAL	25826	3524	6572	13235	-1446	45802	43834	128827	45260	293817	12267	55¢25	26528	34452	1454	7761	-527	-6655	162163	29422	262850	38445	39177	50956	1339157	511736
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83274	98163	96292	74301	218524	76864	540818	34273	159056	57565	78782	4463	22168	7532	16628	313958	\$6965	521814	79390	95448	100465	2820843	910507
LANT	-25511	-13261	-13684	-70049	60966-	-50490	-30467	-89697	-31664	-247002	-22007	-103431	-31037	-44360	-3009	-14407	-8059	-23282	-131775	-30271	-258964	-40945	-49270	-49509	-1481689 -1290721 -398770	0 0 0 0 0
*** STRATEGY MATCH-E FITAL EHISSIONS COST SAVINGS - \$000 RATIO P	0.291	0.151	0.118	0.129	-0.013	965.0	0.372	0.300	0.336	944.0	0.140	0.314	0.361	0.319	0.100	0.277	-0.005	-0.008	0.661	0.302	0.054	0.284	0.275	0.318	i	
*** STRA CAFITAL COST \$000	1332907	540877	506970	1766339	4089679	835373	827659	2257821	795889	4887148	434367	1661714	665924	1013818	95747	304214	240628	918177	6736621	1055927	8691290	947731	1346913	1689767	43643408 37305936 8768516	0 0768516 0
VFIG.) SAVINGS DOLLARS \$000	-90835	-78922	00665-	-260591	-511093	-20345	17342	83260	57249	42682	-36112	-169591	-33525	-64478	-8817	-30281	-57244	-129137	-274776	-57710	-243697	-43299	-87465	-111701	-2193563 -1286137 170532	170532
B.G.(COMP.CONFIG.) IT COST SAVIN IL DOLL IGS RATIO \$00	-0.233	-0.553	-0.189	-0.657	-0.999	-0.047	0.035	0.044	0.047	0.017	-0.082	-0.205	-0.119	-0.152	-0.122	-0.284	-0.084	-0.032	-0.019	-0.142	-0.023	-0.078	-0.149	-0.147		
DER. B.G. UTILITY FUEL SAVINGS	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	4.784	74.2	82.6	93.8	2623 2431 830	8 8 9 0
	14.2	-2.5	1.2	-18.6	-45.7	21.0	24.2	87.4	30.2	165.4	2.9	6.1	11.4	13.4	0.5	0.9	-0.5	13.5	203.3	15.1	118.4	20.2	17.1	27.7	753 800 308	308
JARY - PROCES OGY, THERNION FUEL EMERGY SAVINGS RATIO	0.135	-0.062	0.016	-0.172	-0.407	0.175	0.217	0.173	0.195	0.249	0.026	0.035	0.150	0.116	0.025	0.032	-0.003	0.011	0.051	0.139	0.026	0.130	0.107	0.133		
CTAS GEMERAL SUTHARY - PROCESS LEVEL NO.35 ADVANCED TECHNOLOGY, THERITOHICS, COAL FUEL EMERGY TOTAL INDUSTRY SAVINGS FUEL RATIO SAVINGS	HO.O1 MEAT PACKING	HO. 02 BAKING	HO.03 MALT BEVERAGE	HO.04 WOVEN FARRIC MILL	HO.05 SAW MILL	HO.06 HEWSPRINT MIL!	HO.07 WRITING PAPER MILL	NO.03 CORRUGATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	HO.11 ALUMINA	HO.12 LOW DEHS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	KO.15 STYREME-BUT. RUB.	#10.16 NYLON	NO.17 STYRENE	HO. 18 ETHYLENE	NO.19 PETROLEUM REFINING	HO.20 TIRES	HO.23 INTEGRATED STEEL	HO.24 GRAY IRCH FOUNDRY	NO.25 COPPER	NO.26 MOTOR VEHICLE	ALL HGS CASES CHLY HGS CASES CHLY	ENTSSIONS SAVINGS CASE ONLY FUEL 3 COST SAVINGS CASES FUEL, COST 3 FRISSION SAVING

	07																										
		NGS TOTAL	1	4651416	4623921	2023847	0	2023847	0			)TAL FUEL	† ! !		2501	2630	1214	a	1214	o		-714	-310	99	0	99	٥
		EMISSIONS SAVINGS TONS PER YEAR LANT UTILITY TO	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	9984666	9388322	3528014	0	3528014	0			TOTAL OTHER FUE SAVINGS	1 1 1		2197	2136	٥	0	٥	0		2197	2136	0	0	0	0
	CH-E	EMIS TON PLANT	1 1 1 1 1 1 1 1	-5143438	-4764391	-1504169	0	-1504169	•			COA! OT	1 1 1		7804	7355	3892	0	3892	•		-2911	-2446	99	0	65	0
DY ::	*** STRATEGY MATCH-E		į	e	0	2	0	2	0			BOILER	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		-27811	-26670	9494-	0	-4646	0		0	0	0	0	0	0
ATIVES STU	*** ST	CAPITAL COST \$000	; ; ;	133781760	120670720	35773712		35773712		HIHARY	;	10**12 BTU COAL DERIVED DISTILLATE	,		0	c	0	0	0	0		0	0	0	0	0	0
TECHNOLOGY ALTERNAMEL SUBMARY	16.)	COST SAVINGS DOLLARS \$000		-5991830	-4159311	805356	0	805356	0	SAVINGS SI		GAS	;		0	0	٥	0	0	0		0	0	0	0	0	0
COGENERATION TECHNOLOGY ALTERNATIVES STUDY HATTOHAL SUPPLRY	COMP.CONF		i							NATIONAL FUEL SAVINGS SUMMARY		FUEL SAVINGS   PETROLEUM   BOILER   FUEL	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		6082	5901	900	0	006	٥		0	Ö	0	0	0	0
JGENERAT 10	DER. B.G.	UTILITY FUEL SAVINGS 10**12 BTU	) ; ; ;	9018	6638	3137	0	3137	0	NATI	,	FU PETROLEUM DISTILLATE			-425	-455	0	6	0	0		٥	0	O	0	0	٥
); -	IONICS, COAL	TOTAL FUEL SAVINGS 10**12 BTU	1	2501	2630	1214	0	1214	0			NATURAL PI GAS DI	1		14654	14333	1069	5	1069	0		0	0	0	0	0	0
	YEAR : 1990 NO.35 ADVANCED TECHNOLOGY, THERMIONICS, COAL DER. B.G. (COMP.CONFIG.)	CATEGORY	5	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	EMISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING			CATEGORY		SITE PLUS UTILITY	TOTAL ALI.	FUEL SAVINGS CASES DRLY	COST SAVINGS CASES ONLY	EMISSICHS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING	INCLUDING COAL FUEL CONVERSION	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES DIALY	EMISSICHS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSICH SAVING

## TABLE VI-4 SUMMARY RESULTS MATCH THERMAL STRATEGY

01 ECS SIZE (FIH)	2.43	• 0 . 0	1.42	0.08*	0.00	10.32	7.78	42.27	27.31	3.35	5.46	99.0	0.35*	.48*	0.82	0.31*	17.76	3.68	5.02	69.0	0.00	9.65	0.57*	1.04		
HGS  TOTAL	18156	2937	17114	1339	111149	9025	21512	141467	36289	39263	-2345	1686	1052	1657	1400	526	13642	6963	42774	2776	4864582	139	3281	3936	5345297 369701 249555 4975731 249555	1
EMISSIONS SAVINGS TONS PER YEAR UTLLITY TO	27710	5034	25905	3446	98163	14576	32560	206158	55805	40722	5758	5958	2193	5727	2360	1678	39401	22329	79510	6547	521814	3134	9619	10955	1227063 593694 349820 619977 349820	,
LANT	-9554	-2097	1678-	-2107	12986	-5551	-11049	-64691	-17517	-1459	-8103	-4271	-1146	-4070	096-	-1153	-25759	-12385	-36736	-3771	4342768	-2995	-6338	-7619	4118233 -223992 -100265 4355753 -100265	•
STRATEGY MATCH-T AL EHISSIONS F SAVINGS -	0.214	0.130	0.297	0.013	0.000	0.079	0.190	0.347	0.298	0.061	-0.028	0.010	0.015	0.016	0.102	0.019	0.103	0.014	910.0	0.030	000.0	0.001	0.054	0.026		
*** STRAT CAPITAL E COST \$	542650	157315	349564	138980	٥	116756	291098	1121213	345202	487172	101752	122666	67438	148603	48212	45048	413405	550477	1735940	192565	0	72363	250678	291790	7587877 7321413 2361440 2361440	,
G. SAVINGS DOLLARS \$000	-10287	-22428	-1561	-11729	0	10465	28864	260039	68734	97792	-29612	-13284	-3065	-13621	-871	6505-	-116658	-21471	-1744	-11037	0	-12241	-19346	-50007	122681 169526 465594 0 465894	>
	-0.026	-0.157	-0.006	-0.030	0.000	0.024	0.059	6.139	0.120	0.039	-0.067	-0.021	-0.011	-0.032	-0.012	-0.038	-0.172	-0.005	0.000	-0.027	000.0	-0.022	-0.033	-0.066		
PSIA(EXT), PET. UTILITY COS' FUEL SAVINGS RATIO	25.9	4.7	24.5	3.2	7.16	13.8	25.9	193.8	52.6	37.6	5.4	5.6	2.1	Ŋ,	2.2	1.6	36.8	21.7	74.3	6.1	4.764	2.9	9.0	10.2	1144 553 324 324 324	>
15	12.7	1.7	11.8	9.0	0.0	5.7	12.4	100.3	27.2	4.04	-5.7	-0.3	9.9	0.2	1.2	0.0	0.7	32.7	115.1	1.5	0.0	1.0	1.9	1.8	364 370 370 186	>
ARY - PRCCES OGY,STEAH TU FUEL ENERGY SAVINGS RATIO S	0.121	0.042	0.155	9.005	0.000	0.043	0.111	0.198	0.176	090.0	-0.052	-0.002	0.012	0.002	0.063	-0.002	0.003	0.628	0.026	0.014	000.0	0.006	0.012	600.0		
CTAS GENERAL SUBBARY - PROCESS LEVEL 10. 1 CURRENT TECHNOLOGY,STEAH TUPBINE,61 FUEL ENERGY TOTAL SAVINGS FUEL RATIO SAVINGS	NO.01 MEAT PACKING	NO.02 BAKINS	HO.03 HALT BEVERAGE	HO.04 HOVEN FABRIC MILL	NO.05 SAW MILL	NO.06 NEHSPRINT MILL	HO.07 WRITING PAPER MILL	HO.08 CORRUGATED PAPER	HO.09 BOX BOARD	NO.10 CHLCRINE	HO.11 ALUMINA	HO.12 LOW DENS. POLYETRYL	NO.13 HE DENS. POLYETHYL	HO.14 POLYVINYL CHLORIDE	NO.15 STYRENE-BUT. RUB.	HO.16 HYLCH	HO.17 STYRENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	HO.23 THTEGRATED STEEL	NO.24 SHAY IRON FOUNDRY	HO.25 COPPER	NO.26 MOTOR VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSITYS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUBMARY

46S  TOTAL	11120099 1597013 1276740 9537533 1276740	J	;	1360 1421	881	881	•	1360	1421	881	•	681	•
SIONS SAVINS PER YEAR UTILITY	3832137 2549773 1862652 1188378 1862652	70 68	}		0 94	50	0	197	1518	0	<b>599</b>	0	•
3	7287947 -952770 -585912 8349152 -535912	COAL OTT		10089 3791	2511	2511	0	10089	3791	2511	6177	2511	o
		BOILER		• •	00		0	0	0	0	•	0	0
CAPITAL COST \$000	2900230- 2722059- 1314958- 1314958-	U VED ATE		• •	0 0	• •	0	0	c	0	0	0	0
SAVINGS DOLLARS \$000	631497 1215708 2148104 0 2148104	SAVINGS SI 5 10** GAS D)	:	00	00		0	0	0	0	0	0	0
0. U	i	ONAL FUEL SETROLEUN BOILER FUEL		-16251 -16550	-2874	-2874	0	-16251	-16550	h/ 87-	592	-2874	0
UTILITY FUEL SAVINGS 10**12 B1	3528 2331 1662 1110 11682	OLE		-425	00		o	-425	-17	ဝ	0	0	0
TOTAL FUEL SAVINGS 10**12 BTU	1350 1421 1421 683 0	HATURAL P		14654 12679	1245	1245	o	14654	12679	1245	1431	1045	0
CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST SAVINGS	CATEGORY		SITE PLUS UTILITY 10TAL ALL FUEL SAVINGS CASES ONLY	COST SAVINSS CASES ONLY ENISSICHS SAVINSS CASE ONLY	FUEL & COST SAVARSS CASES	FULL, COST & EMISSION SAVING	DICLUDING COAL FUEL CONVERSION TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	EHISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINSS CASES	FUEL, COST & ENISSION SAVING
	TOTAL UTILITY COST SAVINGS CAPITAL EMISSIONS SAVING FUEL DOLLARS COST TONS PER YEAR SAVINGS SAVINGS SAVINGS SAVINGS \$000 FLANT UTILITY	TOTAL UTILITY COST SAVINGS CAPITAL EMISSIONS SAVINGS FUEL DOLLARS COST TONS PER YEAR	TOTAL UTILITY COST SAVINGS   CAPITAL   FUEL FUEL   FUEL	TOTAL UTILITY COST SAVINGS	TOTAL UTILITY COST SAVINGS	FUEL FUEL FUEL FUEL BOLLARS COST TONS PER YEAR PER YEAR PER YE	TOTAL   UTILITY   COST SAVINGS   CAPITAL   COST SAVINGS   COST   FUEL FUEL FUEL BOLLARS COST PLANT UTILITY TOTAL LINES SAVINGS SAVINGS FIRE FEAR TONS FER FEAR	TOTAL   UTILITY   COST SAVINGS   CAPITAL   COST   TOTAL   UTILITY   COST SAVINGS   CAPITAL   FHISSIONS SAVINGS   S	TOTAL   UTILITY   COST SAVINGS   COST   CO	TOTAL UTILITY	TOTAL   UTILITY   COST SAVINGS   COST   CO		

O1 ECS SIZE (MW)	29.2	0.04*	1.47	*20.0	0.00	10.85	8.58	44.61	29.24	3.31	2.86	0.67	69.0	*65.0	99.0	0.30*	7.10	3.32	5.09	0.70	0.00	0.57*	0.58*	1.08	
HGS  TOTAL	-7608	-1390	+949-	-2362	112632	-5308	-12742	-38763	-11254	2114	-10431	-3787	-3837	-4223	-1084	-1002	-65637	-34455	-123480	-5410	4864582	-3627	-8932	9366-	4617346 -82699 -338322 4977213 -73500
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	29372	9585	56449	3030	98163	14786	34578	210785	57916	39539	1559	5768	4162	5657	2473	1608	11945	21503	82726	6454	521814	2796	9484	10959	1213263 420745 545080 619977 336526
LANT	-37181	-6236	-32913	-5392	14469	-20093	-47320	-249548	-69170	-37425	-16883	-9555	-7998	-9881	-3557	-2610	-77582	-55958	-206206	-11865	4342768	-6423	-18416	-20742	3404080 -503444 -883403 4357236 -460027
*** STRATEGY MATCH-T PITAL ENISSIONS COST SAVINGS - \$000 RATIO P	-0.088	-0.060	-0.105	-0.023	0.000	-0.046	-0.108	-0.090	-0.084	0.003	-0.119	-0.021	-0.052	-0.039	-0.075	-0.036	-0.565	-0.043	-0.041	-0.056	0.000	-0.027	-0.063	-0.062	
*** STRA CAPITAL COST \$000	1516794	288355	983598	069605	•	342259	858188	3139797	945701	1453279	315613	360362	293265	486477	146794	116143	1021506	1816687	5522032	675060	•	187465	866343	1046785	
SAVINGS DOLLARS \$000	-24722	-19303	15637	-329	•	32022	63943	531704	136890	225995	15326	5176	3007	14280	5183	1744	63768	1443101	5015976	13441	0	66422	26138	-9313	7656086 967349 7709753 0
COST COST RATIO	-0.064	-0.135	0.059	-0.001	000.0	0.073	0.131	0.263	0.238	0.091	0.035	0.008	0.011	0.034	0.072	0.016	0.094	0.356	0.340	0.033	000.0	0.173	0.044	-0.012	
S PSIA(EXI), COAL UTILITY COS FUEL SAVINGS RATIO	27.5	4.5	24.7	2.8	91.7	14.0	27.5	198.1	54.6	36.5	6.0	4.6	3.9	5.3	2.3	1.5	11.2	50.9	77.3	6.0	487.4	9:	8.9	10.2	1131 390 597 579 353
SS LEVEL UNDINE, 615 TOTAL FUEL SAVINGS	7.9	1.3	8.1	-0.8	0.0	5.9	6.9	6.59	17.5	36.2	-8.7	-1.5	-2.5	-1.7	0.5	7.0-	-10.8	-1.5	-14.6	-2.3	0.0	-1.6	-3.8	7.4-	146 146 68 0 137
JARY - PROCE OSY,STEAN I FUEL ENERGY SAVINGS RATIO	0.075	0.033	0.106	-0.007	000.0	0.054	0.053	0.130	0.113	0.054	-0.078	-0.009	-0.032	-0.015	0.024	-0.013	-0.057	-0.001	-0.004	-0.021	0.000	-0.010	-0.024	-0.023	
CTAS GENERAL SURTARY - PROCESS LEVEL HO. 2 CURRENT TECHNOLOGY,STEAN TUXBINE,61 FUEL ENERGY TOTAL SAVINGS FUEL RATIO SAVINGS	HO.01 HEAT PACKING	HO. 02 BAKINS	HO.03 MALT BEVERAGE	HO.04 WOVER FAERIC MILL	HO.65 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 WRITING PAPER MILL	HU.08 CORRUGATED PAPER	NO.09 DOX BOARD	NO.10 CHLORINE	HO.11 ALUMINA	NO.12 LOW DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	RO.14 POLYVINYL CHLORIDE	15 STYPENE-BUT. RUB.	NO.16 NYLON	HO.17 STYRENE	NO. 18 ETHYLENE	RO.19 PETROLEUM REFINING	NO.20 TIRES	HO.23 INTEGRATED STEEL	HO.24 GPAY IRON FOUNDRY	NO.25 COPPER	NO.26 NOTOR VEHICLE	SAVINGS CASES OHLY SAVINGS CASES OHLY ICHS SAVINGS CASE OF & COST SAVINGS CASE COST & HISSION SAV
	10.	110.	HD.	HO.	10.	MO.	. O.4	MO.	NO.	NO.	6	NO.	, 0,	20.	1:0.15	730.	140.	NO.	1.0	¥0.	50.	1:0.	MO.	.011	TOTAL FUEL COST FEELS FUEL

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STUDY	
COCEMERATION TECHNOLOGY ALTERNATIVES STUDY	SULTITARY
TECHHOLOGY	NATIONAL SU
COCENERATION	
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YEAD : 1998		_	HATIOHAL SUIHARY	SUFTHARY							
HO. 2 CURRENT TECHNOLOGY,STEAM TURBINE,615 PSIATEXT),COAL	TURBINE, 615 PSI	A(EXT),	COAL		*** STRATEGY MATCH-T	Y MAT	CH-1				07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	11Y EL NGS 12 BTU	COST SA	SAVINCS DOLLARS \$000	CAPITAL COST \$000		EM: TO PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	뛅	.S  TOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CALY ENISSIGHS SAVINGS CASE CHLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING	365 539 358 0 0 571	3505 1852 2308 1110 1791	i a a	25640560 4637793 25743424 0 4722181	67138048 43665904 80656144 0 40405775		4272999 -2552158 -3945292 6351995 -2468936	9 3811295 8 2043987 2 2530515 5 1168376 6 1983397		6064295 -503172 -1414761 9540373 -455540	
CATEGGRY	NAT  HATURAL PETROLEUM  GAS DISTILLATE	HATION FUEL EUM PE LATE B	HATIONAL FUEL SAVINGS SUNNARY FUEL SAVINGS 10**12 BT PETROLEUM PETROLEUM COAL DERI DISTILLATE BOILER GAS DISTILL FUEL	AVINSS St 10** GAS D1	S SUMMERY  10**12 BTU COAL DERIVED DISTILLATE BOILER FUEL	œ	COAL	DTHER SAVINGS	TOTAL FUEL		
SITE PLUS UTILITY TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENIDSIONS SAVINGS CASE FUEL & COST SAVINGS CASES FUEL & COST SAVINGS	14654 1410 13035 1481 1349	-425 -17 -425 -17	6082 1129 5436 582 1109	00000	00000		-13238 -1971 -1971 -19176 6177 -1891	2197 39 1488 664 664	365 589 358 358 0	365 589 356 0 571	
INCLUDING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINGS CASES OHLY CUST SAVINGS CASES OHLY FHISSIOHS SAVINGS CASE FUEL & COST SAVINGS CASES FUEL & COST & FHISSIOH SAVING	14654 14654 13035 14631 1349	-425 -17 -425 0 -17	6082 1129 5436 532 1109	00000	00000	00000	-13238 -1971 -19176 -11977 -11691	2197 39 1438 664 22	365 589 358 0	365 589 359 0 571	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUFFIARY

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07																		
	IGS  TOTAL	31004592	31400976	•	, et	:	129	129	<b>.</b>	. 0	0		167	129	0	0	0	0
	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	10015554	0 9542369 0	•	TOTAL OTHER FUEL SAVINGS		2197	18	0 0 17 0	•	•	į	7417	18	0	2179	•	•
	EMISSI TONS PLANT U		21858592 0	•										m			•	
IATCH-T	! 교	209	218		COAL	; ; ;	15785	463	15322			į	12/02	463		15322		
*** STRATEGY MATCH-T		1 60		•	BOILER	1	0	0	00	•	0	•	•	0	0	0	0	0
*** ST	CAPITAL COST \$000	2889409		IBIARY	10**12 BTU - COAL DERIVED DISTILLATE		0	0	0 0	0	0	•	>	0	0	0	0	0
	SAVINGS DOLLARS \$000	 -768382 -768382		VINGS SU	10** COAL GAS DI		0	0	0 0		٥	•	>	0	0	0	0	•
1 DIST.	cosT s			, HATIONAL FUEL SAVINGS SUTHARY	FUEL SAVINGS I PETROLEUM - E COILER FUEL		6082	32	0 4040	0	0		2000	32	0	6050	0	0
, PETROLEUI	UTILITY FUEL SAVINCS 10+*12 BTU	9224	6782 0	NATIO	FUL PETROLEUM I DISTILLATE	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-405	-405	0 0	0	0		100	-405	0	0	0	0
EL,HIGH SFEED	TOTAL UFUEL SAVINGS 10+*12 BTU	129	000	•	HATURAL PE GAS DI	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	14836	23	0 0 0 0 0		0		14036	ני ני	0	14814	0	o
HO. 3 CURRENT TECHNOLOGY, DIESEL, HIGH SFEED, PETROLEUM DIST.	CATEGORY	TOTAL ALL	COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE FUEL COST SVINGS CASES		CATEGORY		SITE PLUS UTILITY TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY FHISSINGS SLVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	INCLUDING COAL FUEL CONVERSION	וטואר "- אנו	FUCL SAVINSS CASES CHLY	COST SAVINGS CASES ONLY	ENISSIENS SAVINGS CASE ONLY	FUEL \$ COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

SAVINGS         FUEL         FUEL           RATIO         SAVIHGS         SAVIHGS           0.357         71.3         142.           0.201         15.5         52.           0.000         0.0         18.           0.007         0.0         91.           0.007         0.0         91.           0.006         0.0         205.           0.005         9.1         60.           0.005         9.1         60.           0.005         7.1         24.           0.187         7.9         27.           0.187         7.9         27.           0.187         7.9         27.           0.100         0.0         7.           0.000         0.0         293.           0.149         16.5         57.	FUEL VINGS RATIO	SOA + LOC					200	
71.3 15.5 0.0 0.0 38.6 80.2 9.1 143.2 9.1 7.3 7.3 7.9 0.0 0.0			\$000 \$000	SAVINGS RATIO	PLANT	TONS PER YEAR UTILITY	TOTAL	SIZE (MH)
15.5 0.0 38.6 0.0 143.2 7.1 12.7 12.7 12.9 16.9	142.9 -0.35	920861- 59	2401531	-0.548	-254911	152862	-102049	12.66
9.0 9.5 38.6 80.2 9.1 143.2 7.1 12.7 7.9 7.9 9.0 0.0	52.9 -0.803	114669	963358	-0.725	-101773	56552	-45221	0.45*
8.5 38.6 80.2 9.0 143.2 7.1 12.7 7.9 7.9 9.0 0.0	18.9 0.000	0 00	•	0.000	31683	20256	51939	0.00
38.6 80.2 80.2 9.1 143.2 7.1 7.9 7.9 7.9 9.0 0.0	30.0 -0.067	57 -26714	535599	-0.260	-58214	32110	-26104	9.69*
38.6 80.2 0.0 143.2 9.1 12.7 7.9 7.9 7.9 0.0	91.7 0.000	0	•	0.000	12986	96163	111149	0.00
80.2 0.0 143.2 9.1 12.7 7.1 12.9 7.9 3.6 0.0	125.0 -0.06	66852- 69	1048023	-0.693	-235275	131655	-103620	25.85
0.0 143.2 9.1 12.7 7.1 12.9 7.9 3.6 0.0	273.2 - 5.685	335567	2718204	-0.715	-617250	343585	-273664	29.92
0.0 143.2 9.1 12.7 7.1 12.9 7.9 3.6 0.0	205.4 0.000	Ū 00	•	0.000	189040	218524	407564	0.00
143.2 9.1 12.7 7.1 12.9 7.9 3.6 0.0	72.5 0.000	00	0	0.000	51753	76864	126618	0.00
9.1 12.7 7.1 12.9 7.9 3.6 0.0	384.2 0.050	50 124583	3477096	-0.435	-730813	416331	-314482	22.00
12.7 7.1 12.9 7.9 3.6 0.0 0.0	60.0 -0.154	54 -68228	535468	-0.498	-121277	64539	-57038	28.15
7.1 12.9 7.9 3.6 0.0 0.0	45.8 -0.017	17 -10707	508839	-0.228	-89045	49058	-39987	5.36*
12.9 7.9 3.6 0.0 0.0	24.8 -0.024	54 -6743	293410	-0.302	-48347	26620	-21727	4.10
7.9 3.6 0.0 0.0	45.4 -0.030	30 -12478	537550	-0.378	-86167	48545	-39622	3.9[*
3.6 0.0 0.0 16.5	27.5 -0.548	-36535	298907	-0.617	-53319	29453	-23866	9.94
0.0 0.0 0.0 16.5	12.7 -0.036	43834	156367	-0.403	-24714	13662	-11052	2.39#
0.0	7.0 0.000	0 00	•	0.000	93480	7532	101012	00
0.0	16.2 0.000	0 00	•	0.000	700469	16628	7170%	0.00
16.	293.3 0.000	0 00	0	0.000	2396786	313959	2710745	0.00
	57.4 -0.060	66272- 09	770267	-0.522	-111168	61394	-49774	6.26#
0.00 000.0	487.4 0.000	0 00	•	0.000	4342768	521814	4864582	0.00
0.136 21.0	43.7 0.031	17454	443475	-0.262	-80769	46742	-34027	8.69
0.149 23.9	82.6 -0.036	36 -21062	957907	-0.528	-160761	88428	-72333	5.00*
0.126 26.3	160.0- 6.061	-66832	1247762	-0.514	-176516	97318	-79198	8.92
000	2092 1499 428 1103		16893744 16893744 3920570 0		4866646 -2952317 -811562 7818965	0 10 P M	7798938 -1293762 -348509	
164 0	80 <del>1</del>	142037	3920570		-811582	463073	-348509	

	03																											
		INGS	TOTAL	1	14304861	-8362848	-772739	22067712	-772739	0			JTAL FUEL	!		2751	2751	363	0	363	•		2751	2751	363	•	363	0
		EMISSIONS SAVINGS TONS PER YEAR	UTILITY	1	13704287		1026247	3185432		•			2	SAVINGS		2197	182	7.9	2015	7.8	0		2197	162	78	2015	78	0
	TCH-T	EH1	PLAHT	1 1 1	600563	-18881712	-1799986	19432272	-1796996	•				ruel s		18635	4377	1181	8908	1181	0		18685	7486	1161	£30 <b>8</b>	1181	0
- -	*** STRATEGY MATCH-T												BOILER	FUEL		0	•	0	0	٥	•		•	0	0	0	0	0
COGENERATION TECHNOLOGY ALTERNATIVES STUDY HATTONAL SUCHARY	*** STR	CAPITAL COST	\$000	; ; ; ; ;	95096006	92004048	8672746	•	6672746	0	PBIARY	;	່ ຄູພ	† ; ; ;		0	•	•	0	6	0		0	0	0	0	0	0
GY ALTERNA SUIDIARY	ADE	SAVINGS	\$000	; ; ; ; ; ;	6122559-	-6945519	313740	0	313740	0	NATIONAL FUEL SAVINGS SUBBARY		GAS	; ; ;		0	0	0	0	0	•		0	0	0	0	0	0
H TECHNOLOGY ALTER	BOTLER GR	COST S		1							OHAL FUEL		FUEL SAVINGS PETPOLEUM E BOILER	+ UE L		-3590	-8507	-1071	4317	-1071	o		-3590	-6507	-1071	4617	-1071	0
SENERATIO	PETROLEUM	UTILITY FUEL	SAVINGS 10+412 BT	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	12125	9136	6+6	5639	<b>9</b> 70	0	NATI		OLFUN			-425	-425	0	0	0	0		1425	425	0	0	0	0
00 -	EL, LOW SPEED,	TOTAL L	s BTU	! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !	2751	2751	363	0	363	o			HATURAL PETR GAS DIST	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		14772	1623	175	13149	175	0		14:72	1623	175	13143	175	0
	YEAR : 1990 NJ. 4 CURRENT TECHNOLOSY, DIESEL, LOH SPLED, PETROLEUM BOILER GRADE	CATEGORY			1074L ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	EPISSICHS SAVINGS CASE ONLY	FUEL & COST SATINGS CASES	FUEL, COST & EMISSION SAVING			CATEGORY		SITE BILIS LITTS TIV	TOTAL ALL	FUEL SAVINGS CASES CHLY	COST SAVINGS CASES CHUY	ENTSSIONS SAVINGS CASE ONLY	FUEL & COST SAVINSS CASES	FUEL, COST & ENISSION SAVING	INCLUDIES COAL FUEL CONVERSION	TOTAL ALL	FULL SAVINGS CASES CHLY	COST SAVINGS CASES CHLY	ENISSIPA, SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING

1'

01 ECS SIZE (FL4)	.93	•	.07	. 96 •	90.	35.55	.61	.87	. 82	9.	.27	.58	7.16	.82	7.39	44.	00.00	0.00	.56	.03	00.	7.54	.14	7	
 TAL	85417 7	12050 0	84294 5	38629 0	111149 0	46544 35	102589 26	492060 72	135060 71	259409 21	78257 42	44215 5	39797 7	72454 6	1 90061	12253 2	101012	717096 0	2292297 71	80063 9	4864582 0	37348 7	113951 7	127497 12	9:67024 4173135 514510 6055135 614610
EHISCIONS SAVINGS TONS PER YEAR UTILITY TO	96230	13379	99362	45721	93163	52581	116457	555831	152791	277118	97812	51925	42136	65917	22246	14180	7532	16628	1985141	90163	521614	40390	128628	143810	4660504 4016370 635262 3529277 3529277
LANT	-10813	-1379	-14068	-7092	12986	-6037	-13668	-63751	-17731	-17709	-19555	-7710	-7399	-13462	-3240	-1927	93480	700469	407156	-10100	4342768	-3541	-14697	-16313	5306516 156815 -71652 5550858 -71652
*** STRATEGY MATCH-T PITAL EMISSIONS COST SAVINGS - \$000 RATIO P	0.658	0.533	0.648	0.384	0.000	805.0	0.660	6.661	0.660	007.0	0.528	0.252	0.554	0.647	0.603	6.447	000.0	0.000	0.535	559.0	000.0	6.288	0.643	9.9.0	
CAPITAL E COST S	527040	150455	33-819	288010	0	156537	367189	1439642	440281	761023	552049	166172	140588	584794	72518	56905	•	•	7067867	309782	•	138556	400016	269265	13604535 13604535 2049760 7067867 2048760
M DIST SAVINGS COLLARS \$000	-31597	-18942	-77430	-14525	•	30619	6733	-115757	-12255	242617	-71295	16315	13931	16651	-16754	2146	0	0	-1697246	-3165	0	18794	-1256	1.982	-1742696 -1742696 346045 -1697246 346045
PETPOLEUM DIST COST SAVING COLLA RATIO \$000	-0.081	-0.133	-0.294	-0.035	0.000	0.070	0.014	-0.062	-0.021	960.0	-0.161	920.0	6.0.0	0.035	-0.232	0.000	0.000	0.000	5 0-	-0.009	0.000	0.034	-0.005	-0.039	
CT FIRED, UNILITY FUEL SAVINGS	90.06	12.5	92.0	42.7	7.16	6.64	95.6	522.5	144.1	255.8	4.16	43.5	44.1	80.3	20.7	13.2	7.0	16.2	1761.2	9	4.87.4	38.2	120.2	134.3	4341 3733 623 623 623
SS LEVEL BIHE, DIRE TOTAL FUEL SAVINGS	48.3	6.5	44.7	18.2	0.0	36.8	0.67	231.9	77.4	161.3	36.7	23.3	20.6	37.6	10.3	6.2	0.0	0.0	1391.9	5 3	0.0	53.5	63.2	7.07	##300 <b>0</b> ##### ##### #####
APY - FPOCE COY, GAS TUR FUEL EMERGY SAVINGS RAJIO	0.333	0.162	0.310	0.169	0000.0	955.0	0.333	0.343	0.342	0.241	0.215	0.134	0.270	0.369	9.289	0.216	0.000	000.0	0.251	0.301	0.000	0.152	0.320	760.0	
CTAS GENERAL SURMARY NO. 5 CURRENT TECHNOLOGY FUEL INDUSTRY F	NO.01 HEAT PACKING	NO.02 GARINS	NO.03 MALT BEYERAGE	NO.C+ HEVEN FAERIC MILL	NO.05 SAW HILL	NO.06 NEUSPPINT MILL	NO.07 KPITING PAPER MILL	HO.08 CCFRUGATED PAPER	NO.09 DOY POARD	NO.10 CHLCPINE	HO.11 ALUHINA	BOLIZ LOW DENS, POLYETHYL	NO.13 HI DENS. POLYETHYL	40.14 FOLYVINIL CHLOPIDE	KO.15 STYRENE-EUT. PUB.	NO.16 HILCH	KO.17 STYREVE	NO.19 ETHILENE	AO. 19 PETROLEUM REFINING	NO.20 TIFES	HOLDS INTEGRATED STEEL	NO.24 CPAY IFON FOUNDRY	HOLDS COPPER	MOLDS HOTOP VEHICLE	TOTAL ALL FUEL SAVINES CACES CHIT COST SAVINES CASES CHIT ETISSICHS SAVINES CASE ONLY FUEL 1 CHST SAVINES CASES FUEL, COST & EMISSICH SAVING

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

07									
	INGS R TOTAL	27601760 12620763 3685746 19574688 2685746		ITAL FUEL	7114	1960	1960	7114 7114 1960	2663 1950 0
	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	34 14366977 50 13029426 55 4176028 76 4951008 55 4176028		TOTAL OTHER FUE SAVINGS	2197	124	124	2197 1501 124	2005 124 0
ATCH-T	EP PLANT	13434784 -408450 -490285 14623676 -490285		COAL FUEL	19770	4584	4284	19770 13396 4284	10138 4284 0
*** STRATEGY MATCH-T	CAPITAL COST \$000	41620752 41620752 12773341 13547761 12773341	<b>*</b>	SIV SIVED LLATE BOILER FUEL					
	SAVINGS CAP: DOLLARS (	-3566536 4 -3566536 4 1368057 12 -3253298 1 1368057 12	HATIOHAL FUEL SAVINGS SUMHARY	10*#12 BTU COAL DERIVED GAS DISTILLATE	• •	0 (	900	• • • • •	<del>.</del>
, PETROLEUM DIST	COST	1	TONAL FUEL	FUEL SAVINGS PETROLEUM E BOILER FUEL	<b>5641</b> 3057	561	561 561	5641 3057 561	4036 162 0
RECT FIRED	UTILITY FUEL SAVINSS J 10**12 BTU	4 13210 4 11955 0 3666 0 3666 0 3666	MAT	PETROLEUM DISTILLATE	-17047	-3917	-3817	-17047 -17047 -3817	0.40/- - 3317 0
TURBINE, DIRECT FIRED,	TOTAL FUEL SAVINGS 10*412 BTU	7114 7114 7116 1960 1960 1960		NATURAL 64S	14768 6206	608	808	14768 6206 803	24527 808 0
YEAR : 1990 HO. 5 CURRENT TECHNOLIGY, GAS 1	CATEGORY	TOTAL ALL FUEL SAVINGS CASES OHLY COST SAVINGS CASES OHLY EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING		CATEGORY	SITE PLUS UTILITY TOTAL ALL FUEL SAVIMGS CASES ONLY	COST SAVINSS CASES ONLY	FUEL & COST SAVINGS CASE SILE FUEL & COST SAVINGS CASES	INCLUDING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES ONLY	FULLSTURS SAVIESS LASE UNLY FUEL & COST SAVIESS CASES FUEL COST & EMISSION SAVING

CS

01 465 ECS SIZE TOTAL (Mi)	220498 25.20	38877 0.43#	51439 0.00	126804 5.78*	111149 0.00	116840111.88	262593 83.71	1255992137.55	345075112.99	640922 68.02	213271133.58	118129 17.93	105409 22.63	192312 21.61	13722 0.00	37513 9.10*	101012 0.00	717096 0.00	2710745 0.00	248572 35.32	4864582 0.00	60569 13.71	358911 28.28	395442 50.50	13310069 4739025 60569 60569 60569
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	302235	53405	20256	176890	93163	162999	360824	1722515	473540	860238	304090	164471	147131	268443	4463	52123	7532	16628	313959	346873	521814	74018	501349	552047	997 164 018 815 018
LANT	-81737	-14528	31683	-50086	12986	-44158	-98230	-466524	-128464	-219316	-90818	-46342	-41722	-76131	9258	-14610	93480	700469	2396786	-98201	4342768	-13449	-142438	-156604	44444
STRATEGY MATCH-T IL ENISSIONS SAVINGS -	0.657	0.656	0.000	0.653	0.000	0.657	0.657	0.657	0.657	0.662	0.602	0.654	0.653	0.653	000.0	0.654	0.000	0.000	000.0	0.653	000.0	997.0	0.653	0.653	1
*** STRAI CAPITAL   COST \$	2213541	1450074	0	1492540	0	493450	1156962	5108452	1437512	2829143	881234	703444	585165	1095110	0	267052	0	0	0	1477399	0	353476	1876731	2446537	25857744 25857744 353476 353476 353476
SAVINGS DOLLARS \$000	-489169	-196038	•	-247493	0	-98460	-415902	-2123214	-563020	-427160	-427739	-47500	-155447	-321208	0	-57601	0	0	0	-477638	0	19209	-666503	-793921	-7488797 -7483797 19209 19209
LEUN DIST COST RATIO	-1.257	-1.373	000.0	-0.624	0.000	-0.226	-0.850	-1.131	-0.979	-0.172	-0.967	-0.074	-0.553	-0.760	0.000	-0.540	0.000	000.0	0.000	-1.179	0.000	0.034	-1.134	-1.048	
IRED, PETROLEUM DIST UTILITY COST FUEL SAVINGS RATIO	282.5	49.9	18.9	165.3	91.7	154.8	286.9	1619.2	9.955	793.9	284.0	153.7	137.3	251.0	4.2	48.6	7.0	16.2	293.3	324.1	4.97.4	69.2	468.5	515.5	6970 6051 69 919 69 69
<u> </u>	9.06	15.8	0.0	49.3	0.0	49.3	9.06	516.6	142.1	275.8	77.8	46.3	41.0	74.8	0.0	14.7	0.0	0.0	0.0	7.96	0.0	34.6	139.8	153.7	1909 1909 35 35 35 35
ARY - PROCE 06Y, CONB. CT FUEL ENERGY SAVINGS RATIO	0.267	0.213	0.000	0.252	0.000	0.269	0.267	0.269	0.269	0.286	0.214	0.258	0.256	0.256	0.000	0.259	0.000	000.0	0.000	0.256	0.000	0.223	0.256	0.244	
CTAS GENEPAL SURMARY - PROCESS LEVEL NO. 6 CURPENT TECHNOLOGY, CCMS. CICLE, DIR. FUEL ENERGY TOTAL THDUSTRY SAVINSS FUEL RATIO SAVINSS	HO.01 MEAT PACKING	HO.02 BAKING	NO.03 MALT BEVERAGE	NO.04 HOVEN FABRIC MILL	NO.05 SAW MILL	NO.06 NEWSFRINT MILL	NO.07 ERITING PAPER MILL	NO.08 CORRUGATED PAPER	NO.09 BOX BOARD	RO.10 CHLORINE	HO.11 ALUMINA	NO.12 LOW DENS. POLYETHYL	NO.13 HI DEMS. POLYETHYL	HO.14 POLYVINYL CHLORIDE	HO.15 STYRENE-BUT. RUB.	HO.16 NYLON	NO.17 STYRCNE	MO.19 ETHYLENE	NO.19 PETROLEUM REFINING	MO.20 TIRES	NO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	MO.25 COPPER	NO.26 MOTOR VEHICLE	ALL VINGS CAS VINGS CAS VINGS SAVING RS SAVING COST SAVI

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUNMARY

07			
	HGS TOTAL		41475408 20932208 116099 20543248 116099
	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	1	30885552 28885616 141078 1999948 141878
Y MATCH-T	EMISS TON	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10589919 -7953387 -25779 18543296 -25779 0
*** STRATEGY MATCH-T	CAPITAL COST \$000		101696320 101696320 677547 677547 0
UM DIST.	COST SAVINGS DOLLARS \$000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-32469232 -32469232 36820 36820 36820
RED, PETROLE	UTILITY FUEL SAVINGS 10**12 BTU	1	28186 26313 133 1873 133
OTB.CYCLE, DIR.FIRED, PETROLEUM DIST.	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10*412 BTU 10**12 BTU		8203 8203 66 66
YEAR : 1990 HO. 6 CURPENT TECHNOLOGY,CORB	CATECORY		TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL \$ COST SAVINGS CASES FUEL.COST & EMISSION SAVING
		;	21 20 20 20 20 20 20 20 20 20 20 20 20 20

NATIONAL FUEL SAVINGS SUMMARY

	NATURAL PETRO	ETROLEUM	FUEL SAVINGS PETROLEUM	- 5	10##12 BTU COAL DERIVED		!	_	OTAL
CATEGORY	GAS D	GAS DISTILLATE BOILER	BOTLER			BOILER	COAL	OTHER	FUEL
			FUEL		<b></b>	UEL	FUEL		
			;	!					1
SITE PLUS UTILITY									
TOTAL ALL	14772	-23209	5977	0	0	0	34747	2197	8203
FUEL SAVINGS CASES ONLY	2319	-23209	1565	0	0	0	27358	170	8203
COST SAVINGS CASES ONLY	17	-116	-101	0	0	0	135	78	99
EMISSIONS SAVINGS CASE ONLY	12453	0	4411	0	0	0	7389	2027	0
FUEL & COST SAVINGS CASES	7.1	-116	-101	0	0	0	135	7.8	99
FUEL, COST & EMISSION SAVING	0	0	0	0	0	•	0	0	0
INCLUDING COAL FUEL CONVERSION									
TOTAL ALL	14772	-23209	5977	0	0	0	34747	2197	8203
FUEL SAVINGS CASES ONLY	2319	-23009	1566	0	0	0	27358	170	8203
COST SAVINGS CASES ONLY	7.1	-116	-101	•	0	0	135	78	99
EMISSIONS SAVINGS CASE ONLY	12453	0	4411	0	0	0	7389	2027	0
FUEL & COST SAVINGS CASES	71	-116	-101	0	0	0	135	78	99
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0	•

01 ECS SIZE	Ē	2.82	0.05*	1.63	0.07*	00.00	15.63	9.10	48.57	31.89	3.27	2.84	69.0	1.03	96.0	96.0	0.30*	14.46	9.56	13.27	0.70	00.00	0.73	1.00	1.75	
н65	TOTAL	19960	3220	18539	1353	112632	11631	23777	151001	41383	47263	-2700	1951	2679	4901	1501	641	16205	26937	100502	2374	4864532	-54	2497	7620	5463395 485883 275055 502476 275055 47263
EMISSIONS SAVINGS TONS PER YEAR	UTILITY	31613	5436	29226	3069	98163	21641	37340	232759	64017	39210	6482	5925	6024	10983	2628	1618	30519	58797	203985	6523	521814	3483	15698	17004	1453953 827497 394967 659187 394967 39210
1	PLANT	-11653	-2216	-10687	-1716	14469	-10010	-13563	-81758	-22635	8053	-9182	-3974	-3345	-6082	-1127	-977	-14314	-31860	-103483	6515-	4342768	-3537	-10201	-9384	4009440 -338614 -119912 4365239 -119912 8053
*** STRATEGY MATCH-T PITAL EMISSIONS COSI SAVINGS -	PATIO	0.225	0.139	0.287	0.013	0.000	0.100	0.202	0.341	0.308	0.071	-0.031	0.011	0.036	0.045	0.103	0.023	0.120	0.032	0.034	0.024	0.000	0.000	0.039	0.049	
*** STRA CAPITAL COSI	\$000	866859	206294	442568	149193	0	157042	319034	1226048	371083	515281	112414	145649	126695	235483	53030	50307	377632	836536	2657303	222260	0	89836	370361	448020	🔾 တိတ္ကလုတ္
DER. B.G. T. SAVINGS DOLLARS	000\$	-13157	-25414	-8945	-10799	0	10551	35647	269615	17703	139306	-29052	-11708	+6854	-12799	-1258	-3518	-57486	-70693	-2614	-13859	0	-13865	-27354	-53950	169559 198011 530523 139300 530003 139500
OE T	RATIO	-0.034	-0.178	-0.034	-0.027	000.0	0.024	9.073	0.144	0.135	0.056	-0.066	-0.018	-0.024	-0.030	-0.017	-0.033	-0.035	-0.017	0.00.0	-0.034	0.00.0	-0.025	-0.0-7	-0.071	
PSIACEXT),COAL UTILIIY COS FUEL	SAVIRIGS	29.6	5.1	27.3	2.9	91.7	20.6	29.7	218.8	60.4	36.2	6.1	5.5	5.6	10.3	2.4	1.5	28.5	57.3	196.6	6.1	487.4	3.3	14.7	15.9	1357 772 3c6 615 366 35
ESS LEVEL TUPBIHE,615 Y TOTAL U FUEL	SAVINGS	15.0	2.2	13.7	1.1	0.0	7.0	14.7	111.6	30.5	52.3	-5.3	9.0	9.	3.0	7.1	0.3	12.3	42.2	144.8	1.6	0.0	1.0	3.2	5.3	451 100 100 510 52
	RATIO	0.143	0.056	0.172	0.010	000.0	0.059	0.132	0.215	0.193	0.078	-0.047	0.004	0.021	920.0	0.072	0.011	0.05	0.035	0.035	0.014	0.000	0.007	0.000	0.025	
CIAS GLHEPAL SUHHARY - PRCC HO. 7 ADVAHCED TECHHOOLOGY,STEAN FUEL EHERC IHOUSTRY SAVINGS		NO.01 HEAT PACKING	KO.02 BAKING	KO.03 MALT PEVERAGE	HO.04 WOVEN FABRIC MILL	HO.05 SAW MILL	NO.06 NEWSPRINT MILL	HO.07 WRITING PAPER MILL	NO.08 CORRUGATED PAPER	HO.09 EOX BOARD	HO.10 CHLORINE	KO.11 ALUMINA	NO.12 LCW DEMS. POLYETHYL	KO.13 HI DEMS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	MO.15 STYREME-BUT. RUB.	HO.16 HYLON	NO.17 STAPENE	HO.16 ETHYLENE	NO.19 PETFOLEUM REFINING	MO.20 TIRES	MO.23 INTECPATED STEEL	MOLEN GRAY IFON FOUNDRY	MO.25 CCPPER	HO.26 HOICE VEHICLE	TOTAL ALL FULL SAUTHOS CASES CHLY COST SULHYS CASES CHLY ENISSICHS SAVINCS CASE CHLY FUEL & COST SAUTHOS CASES FULL,COST & EMISSICH SAVING

- CCGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUMMARY

TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	1500	SAVINGS DOLLARS \$000	CAPITAL COST \$000		EPLANT	EHISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	VINGS AR TOTAL
1718 435 1772 318 1023 196 1103 1196 118 8	! • • • • • • • • •	890045 1191051 2419355 313409 313409	36574080 35409344 14760776 1159267 1159267		68347 -142212 -75880 -75880 -75880	21 12 12 12	4 11549446 2 2037050 8 1418739 1 9646705 1 9648739 3 106331
HA HATURAL PETROLEUM GAS DISTILLAT	TIONAL FUEL FUEL SAVINGS PETROLEUM E BOILER FUEL	SAVIHGS SU COAL GAS DI	V KED .	TLER UEL	COAL FUEL	TO OTHER SAVINGS	TOTAL FUEL
		0 (		.22803	10917		1718
		<b>-</b> 0		-4095	4677	1532	1772
		0	0	-346	6489	999	118
		00	00	-4095	2798 312	00	1023 118
1481 0 0 0 0 1461 0 0	582 0 582 0	00000	• • • • •	00,00	4410 -1662 262 6211	2197 1532 0 664 0	-234 -129 262 34 262
		0	0	c	34	0	40
	108 11 12 13 13 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	168 46 11 11 11 11 11 11 11 11 11 11 11 11 11	13 4356 890045 13 1969 2419359 13 1969 2419359 13 1969 2419359 13 1969 313403 13 1969 313403 14 1911 1911 1911 1911 1911 1911 1911 1	18 4356 890045 36574080  22 3164 1191051 35409344  23 1969 2419355 14760776  23 1969 2419355 14760776  24 19355 14760776  24 19355 14760776  24 19355 14760776  24 19355 14760776  24 19355 14760776  313409 1159267  3100000000000000000000000000000000000	18 4356 890045 36574080  72 3164 191051 35409344  2419355 14760776  13 1969 2419355 14760776  13 1969 2419355 14760776  13 1969 1159267  14 1969 2419355 14760776  15 1969 1159267  16 10 10 10 10 10 10 10 10 10 10 10 10 10	18 4356 890045 36574080 68  22 3164 1191051 35409344 -14  23 1969 2419355 14760776 -7  19 1091 2419355 14760776 -7  18 81 1969 2419355 14760776 -7  18 81 1991 2419355 14760776 -7  19 1091 2419355 14760776 -7  10 10 10 10 10 10 10 10 10 10 10 10 10 1	196   196   196045   34574080   6834734   471469   196045   3457080   1969734   197145   3457080   1969734   197145   19697   197145   1

01 ECS SIZE (MH)	2.66	0.04*	1.52	0.07*	0.00	10.69	6.39	56.93	37.13	3.36	2.33	0.68	0.34*	*65.0	0.63	0.30*	17.40	2.42	3.93	*05.0	0.00	0.57*	0.38*	0.70	
HGS  TOTAL	13496	2117	12223	260	112632	7512	17606	153058	42027	35491	-4306	-210	247	-602	659	-1	7183 1	-10657	-38671	1116	4864582	-2435	1131	1559	001 003 003 003 003 003 003
EHISSIONS SAVINGS TONS PER YEAR UTILITY TO	28523	4637	26034	2970	98163	14368	33291	266928	72677	36921	5249	5618	2036	5479	2235	1551	34447	15493	6353.5	4529	521814	2715	6257	7128	1264700 621143 640057 619977 616506
LANT	-15032	-2519	-13810	-2710	14469	-6856	-15685	-113870	-30850	-3331	-9555	-5827	-1788	-6081	-1376	-1552	-27264	-26150	-102406	-3411	4342768	-5150	-5126	-5569	3951316 -375044 -403599 4357236 -372524
*** STRATEGY MATCH-T PITAL EHISSIONS COST SAVINGS - \$000 RATIO P	0.152	160.0	0.199	0.003	0.000	0.065	0.149	0.321	0.312	0.054	-0.049	-0.001	0.003	-0.006	0.059	0.000	0.052	-0.013	-0.013	0.011	0.000	-0.018	0.008	0.010	
#** STRA CAPITAL ( COST \$000	1230181	297098	841977	280632	0	219130	564462	2193616	664855	983310	182904	270809	152558	332853	106699	90865	780691	1272767	3642579	377385	0	183728	450748	559562	470 791 760 760
SAVINGS DOLLARS \$000	1728	-21223	24483	15573	0	48438	101857	707000	207222	281096	34423	13986	21751	31276	9832	4322	100548	1533441	9566625	52120	0	95238	73136	55625	6695793 6501979 6718016 0 8523201
,COALCAF COST RATIO	0.004	-0.149	0.093	0.039	0.000	0.111	0.208	0.377	0.360	0.113	0.078	0.022	0.077	0.074	0.136	0.041	0.148	0.378	0.359	0.129	0.000	171	0.133	0.073	
PSIA(EXT),COAL(AFB) UTILITY COST SAV FUEL DO SAVIUSS RATIO	26.7	4.3	24.3	2.8	7.16	13.6	26.5	250.9	68.7	35.8	4.9	5.2	1.9	5.1	2.1	1.4	32.2	15.1	59.4	4.2	4.67.4	2.5	5.8	6.7	1 1 1 1 1 1 1 1 1 1 1
SS LEVEL URCINE, 615 TOTAL FUEL SAVINGS	10.1	1.5	8.9	-0.1	0.0	5.8	11.4	116.1	32.1	39.9	-6.5	-1.6	0.3	-1.6	6.0	7.0.	4.8	9.8	20.7	1.2	0.0	-1.7	5.0	2.1	20 00 00 00 00 00 00 00 00 00 00 00 00 0
	960.0	0.033	0.117	-0.001	0.000	0.048	0.102	0.211	0.207	0.060	-0.058	-0.009	0.003	-0.014	0.046	-0.014	0.023	0.008	90000	0.011	0.000	-0.011	0.012	010.0	
CTAS GENEPAL SUBBAPY - FROCE HO. 8 ADVANCED TECHNOLOGY,STEAN T FUEL ENERGY THOUSTRY SAVINGS RATIO	HO.01 HEAT FACKING	HO.02 BAKING	NO.03 MALT BEVERAGE	HO.04 HOVEN FAERIC MILL	10.05 SAN MILL	MO.06 NEWSFRINT MILL	MO.07 WRITING PAPER MINE	NO.08 CORRUSATED PAPER	MO.09 BOX BOAPD	MO.10 CHLORINE	NO.11 ALUMINA	NO.12 LOW DENS. POLYETHYL	HO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STRENE-BUT. RUB.	NO. 16 NYLON	NO.17 STYPENE	NO.18 ETHYLENE	NO.19 PETFOLEUM REFINING	KO.20 TIPES	HO.23 INTEGRATED STEEL	MO.24 GRAY IRON FOUNDRY	MO.25 COPFER	HOLZE MOTOR VEHICLE	. 영영 <b>아는 ~</b>

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATICHAL SUBBARY

	07																							
		16S  TOTAL		10676783	1152353	9540373	1185196			- <del>-</del>	:		1047	1135	<b>†</b> 6	1132	•	ŗ	140	1135	1044	0	1132	0
		SAVI) YEAR ITY		4026087	2828823	1189378	3910			TOTAL FUEL					•			•	•		_		_	
		EMISSIONS SAVINGS TONS FER YEAR		402	282	118	270391			OTHER Savings			2137	0 5 5	777	1403	0	2	1617	9151	1520	4,99	1403	0
		EHIS - TOH		6650684	-1696490	6351995	-1518720			OT SA							_			_	_		_	_
	TCH-T	PLANT		665	-169	635	-151		!	COAL			-12557	44//1-	41101-	-17744	0	1	10071	-17759	-18719	6177	-17744	0
	TEGY HA									EOILER FUEL			0 (	9 6	•	9 0	0	•	>	0	•	0	0	0
	*** STRATEGY MATCH-T	CAPITAL COST \$000		59427248	56557792	0	52801008	RIMARY		<u> </u>			۰ ۰		•	• 0	0	•	>	<b>~</b>	0	0	0	0
- - - -		AVINGS DOLLARS \$000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	29773680	29314352	0	29007536 0	NATIONAL FUEL SAVINGS SUNNARY	HTW 614401				0 (	<b>)</b>	<b>,</b>	0	0	•	> -	•	0	0	0	•
ואיוווסט באיטווויאן	AFB)	S		297	0 6		290	EL SAV		,			(1)	าย	٠,	1 0		,		<b>~</b> 1	ın	2	<b>o</b>	0
1461	,C04L	COST						HAL FU	SUITARY 1911	ETROLE COTLER FUEL			6082	200		5003		•	000	5013	2495	505	5003	
	SIACEXT	UTILITY FUEL SAVINGS 104+12 BTU	!	3703	25.50	1110	2473	HAT I	1	PETROLEUM PETROLEUM DISTILLATE GOILER FUEL	;		ال ال	7	,	-17	•	,	6		-458	0	-17	0
	615 P	5A\ TU 10	-	1047	1133	0	1132 0		1		; ;		<b>.</b>	.J M	٠ -	• 61	0		-	r.,	~	-	د،	0
	AH TURBIHE, 615 PSIA(EXT), COALLAFB)	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	1 1 1 1 1 1	10	101		<b>.</b>		4 9 1 4 9 1 1 1 1	NATURAL GAS	!		14654	7777	6 (16.1	10431			1001	12405	13173	1481	12402	
																		HOIS						
	HO. 8 ADVANCED TECHNOLOGY, STE		!	,	-, >-,	ONLY	SES AVING				į		,	- >	5	15ES	AVING	THELUDING COAL FUEL CONVEPSION	:	<b>-</b> :	_	CMLY	15 ES	KVING
	D TECH				ES CHI	S CASE	SICH					۲۲		15 OH		10 C S C 1	STON	FUEL (		ES 031	ES 034	S CASE	13.8 CA	SICH
6	VANCE	:03 K		ALL	25.025	SAVING	SAVI En1S			SORY	!	UTILI	אור	25.00	11.41.75	IAYS .	EHI3	COAL	֓֞֜֝֜֝֜֝֜֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֓֓֡֓֓֓֓֓֡֓֓֡֡֡֓֡֡֡	SCAS	S CAS	::IAES	37.	EMI S
VEAD . 1990	. 8 AD	CATEGORY	!	TOTAL ALL	COST SAVINGS CASES ONLY	ENISSICHS SAVINGS CASE ONLY	FUEL, COST SAVINGS CASES FUEL, COST & EMISSIGH SAVING			CATEGORY	;	SITE PLUS UTILITY	TOTAL ALL	FUEL SAVINGS LASES UNLY	COST CAVANCO CASES CITY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	INCLUDING COAL	)	FUEL SAVINGS CASES ONLY	SAVING	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SACTROS CASES	FUCL, COST & ENISSION SAVING
VEAR	1:0		1	TOTAL	COST	En155.	FUEL.				1	SITE	TOTAL	FUEL	LITTE	FUEL	FUEL	INCL		LUEL	COST	ENISS	FUEL	FUCL

ECS SIZE (MU)	111.47	0.29#	9 10 08	3 2.26	0.00	5 13.82	5 14.02	00.00	9 0.00	1 13.93	16.91	2 10.96	73.57	5 12.93	9 0.00	6 5.58	00.00 2	9 0.00	2 0.00	0 14.10	00.00	9 14.80	7 11.28	8 12.09	**************************************
PMGS  TOTA!	99559	11216	80809	33470	112632	34775	76026	429152	134528	191791	53018	31632	27767	50615	1451	10124	111687	797088	2984452	65620	4864582	30238	94217	104048	\$ 0 7 0 7 0 0 0 0 7 0
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	207731	36051	1.94988	106920	98163	111606	243760	218524	76864	533138	188323	101439	88954	162008	4463	32239	7532	16628	313958	209443	521814	80353	302527	333195	4190612 2930668 826536 1257946 826536
LANT	-143243	-24835	-134161	-73450	14469	-76831	-167734	210628	57664	-341347	-135305	-69808	-61187	-111393	10056	-22114	104155	780461	2670494	-143823	4342768	-50114	-208311	-229147	6197870 -1992619 -538100 8190694 -538100
STRATEGY MATCH-T LL EMISSIONS F SAVINGS -	0.263	0.264	0.264	0.265	0.000	0.264	0.265	0.000	000.0	0.290	0.220	0.179	0.265	0.265	000.0	997.0	0.000	000.0	000.0	997.0	0.000	0.221	0.264	0.265	i
*** STRA CAPITAL COST \$000	1931457	217686	972945	625944	0	571093	1251716	•	0	2689545	931043	503341	906055	803112	0	160460	0	0	0	1233032	0	412303	1500045	2141341	16385963 16325963 4176280 4176280
SAVINGS DOLLARS \$000	-245315	-32500	-184334	-11299	•	10451	-161948	•	٥	278963	-184269	29124	-17251	-66720	0	-4164	0	0	•	-161086	6	45508	-206292	-299373	-1209534 -1269534 -1269534 364016 364016
DIST. COST RATIO	-0.630	-0.228	-0.700	-0.028	000.0	920.0	-0.331	0.000	0.000	0.112	-0.416	950.0	-0.061	-0.158	0.000	-0.039	0.000	000.0	000.0	-0.398	0.000	0.082	-0.351	-0.394	
COAL DER. UTILITY FUEL SAVINGS	194.2	33.7	182.3	6.66	7.16	106.0	193.8	205.4	72.5	492.0	175.9	94.8	63.0	151.5	4.2	30.1	7.0	16.2	293.3	195.7	487.4	75.1	262.7	311.1	3830 2702 763 1178 763
EED	109.9	19.0	103.2	56.6	0.0	59.7	3.601	0.0	0.0	314.4	91.5	53.6	47.0	85.9	0.0	17.0	0.0	0.0	0.0	110.9	0.0	52.1	160.3	176.3	1567 1567 430 460
ARY - PROCE CGY, DIESEL, FUEL ENEFGY SAVINGS RATIO	0.437	0.328	0,4.0	9.436	000.0	0.443	9540	000.0	0.000	0.470	0.359	0.307	0.445	0.445	0.000	9.445	0.000	0.000	0.000	9,445	000.0	0.335	0.445	0.414	
CTAS GENEPAL SUMMARY - PROCESS LEVE HO, 9 ADVANCED TECHNOLOGY, DIESEL, NIGH SPI FUEL ENEGY TOTAL THOUSTRY SAVINGS FUEL RATIO SAVINGS	HO.01 HEAT PACKING	HO. 02 BAKING	NO.03 MALT BEVERAGE	HO.04 WOVEN FABRIC HILL	HO. 05 SAW MILL	NO.06 NEWSPRINT MILL	HO.07 WRITING PAPER HILL	MO. 08 COERUGATED PAPER	MO.09 BOX BOARD	NO.10 CHLCRINE	HO.11 ALUNINA	MO.12 LOW DEMS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STAPEME-BUT. RUB.	HO.16 NYLON	HO.17 STIRENE	110.18 ETHYLENE	NO.19 PETROLEUM REFINING	MO.20 TIRES	HO.23 INTEGRATED STEEL	NO.24 GRAY IPON FOUNDRY	RO.25 COPPER	VEHICLE	TOTAL —— ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSICHS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & FMISSICH SAVING

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- COGENEPATION TECHNOLOGY ALTERNATIVES STUDY -- HATIONAL SURBAPY

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	TOTAL			FUEL	6703	1962	0 2961	0	4112 4112 1208 1208 0
	EMISSIONS SAVINGS TONS FER YEAP - PLANT UTILITY T	16350975 13192606 3518163 3168372 3518163		<b>ω</b> '	2197	91	2017	. •	2197 180 91 2017 91
_	EMISS TONS PLANT			1	21366 2		8796 2	0	12728 2 3932 1117 8796 2 1111
HATCH-		≓1ïñï		COAL					
*** SIRATEGY HATCH-T	;	51 52 53 50 50 50		BOILER	96-	- 96	0 46		00000
\$ **	CAPITAL COST \$000	69816416 69316416 17839568 17839568	UNINARY	COAL DERIVED DISTILLATE	-8363 -8363	-2332	0 -2 4 4 2	0	00000
	SAVINGS DOLLARS \$000	-5937159 -5987159 1015056 1015056	NATIONAL FUEL SAVINGS SUMMARY	GAS	<b>.</b>	0	00	• •	<b>0</b> 0000
0151.	1800		HAL FUEL	FUEL SAVINGS I PETROLEUM E BOILER FUEL	6082	250	4891		4891 0 0 0 0 0 0
ככאו מבא.	UTILITY FUEL SAVINGS 10**12 BTU	148 116 32 32 32	NATIC	PETROLEUM PETROLEUM DISTILLAME BOLLER FUEL	804 - 804 -	0	0 6	. 0	00000
L,HIGH SPEED,	TOTAL U FUTL SAVINGS 5	6703 6703 1955 1965		HATURAL PET	8) 609 5) 5) 5)	418	13140		13140 0 0 13140 0
YEAR : 1990 13. 9 ADVANCED TECHNOLOGY, DIESEL, HIGH SPEED, CCAL DER. DIST.	CATEGC2Y	TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CACES CHLY ENISSICHS SAVINGS CASE CHLY FUEL & COST & EMISSION SAVING		CATEGORY	SITE PLUS UTLLITY TOTAL ALL FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	EMISSIONS STVINGS CASE ONLY	FUEL COST & ENISSION SAVING	INCLUDING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINGS CASES ONLY GOST SAVINGS CASCS CHLY EHISSICHS SAVINGS CASES FUEL & COST SAVINGS CASES FUEL & COST SAVINGS

- CGSEL.EATION TECHNOLOST ALTERNATIVES STUDY - NATIONAL SUBBRY

07										
	IVINGS	14 12519068 16 -13199382 17 -1429361 18 -25718432 19 -1429861	JTAL FUEL	6787 6787	765		100 m	187	0	167
	MISSIONS SA TONS PER YE UTILITY	1	TC OTHER SAVINGS	2197	78 2073 78	ုင	2197	154 78	2073	82 <b>cs</b>
TCH-T	PLAHI	-92356 -306095 -34951 -34951 -34951	COAL	26325 16559	2036 9766 2036		9419	110	97.06	0
TRATEGY MA			FUEL	-13546 -13546	-1774	•	00	• •	0	<b>6</b> 0
ν	CAPITAL COST \$COO	1511304 1511304 171590	UNHARY *12 BTU L DEPIVED ISTILLATE	00	• • •		00	• •	•	<b>o</b> o
CRO	SAVINGS DOLLARS \$00J	15302340 15302340 51437 51437	SAVINGS SU 10*: 6AS DI	• 0	000		00		0	00
VED COILE	1502	i '	ONAL FUEL EL SAVING PETPOLEUTI COLLER FUEL	3000	180 5309	•	5309	00	5309	<b>0</b> 0
CO IL DERI	UTI ITY FUL: SAVINGS 10**12 BT	199364 19830 19830 31960 3460	NATI FU FU STILLATE	00	000		00	0	0	00
SEL, LOH SPEED,	TOTAL FUCL SAVINGS 10++12 BTU	6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	HATUSAL PE	616 60871	13691 13691		13391	, 6	13091	<b>9</b> 0
HOLLO ADVANCED TECHNOLOSY, DIES	CATEGORY	OTAL ALL UEL SAVINGS CASES ONLY OST SAVINGS CASES ONLY MICSICHS SAVINGS CASE CHLY UCL & CCST SAVINGS CASE UEL,COST & EMISSION SAVING	CATESCRY	SITE PLUS UTILITY OTAL ALL UEL SAVINGS CASES CHLY	00T SYVINGS CASES CHLY PIESICHS SAVINGS CASE ONLY URL 1 COST SEVINGS CASES	UEL, COST & ENTSTON SAVING	OTAL ALL	COL SAVINGS CASES ONLY	HISSICHS SAVENGS CASE CALY	FUEL # COST SAVINGS CASES FUEL,COST # EMISSION SAVING
	HOLLO EDVANCED TECHNOLOSY, DIESEL, 10:1 SPEED, CO.L DERIVED BOILER CRD STRATEGY MATCH-T	TO ADVANCED TECHNOLOSY, DIESEL, LOSA SPEED, COSL DERIVED BOILER CRO *** STRATEGY MATCH-T  TOTAL UTI ITY COST SAVINGS  CATECORY  SAVINGS  S	-** STRATEGY MATCH-T  EMISSIONS SAVINGS  ARS COST TONS PER YEAR  500 PLANT UTILITY TOTAL  2340 151130400 -9235898 21754944 12519068  2340 151130400 -9235898 17610176 -13199382  1437 17159056 -3495704 2065942 -1429361  0 0 21573648 4144784 25718432  1437 17159056 -3495704 2065942 -1429861  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL   UTI   ITY   COST SAVINGS   CAPITAL   EMISSIONS SAVINGS   FULL   FULL   SAVINGS   SAVIN	TOTAL   UTI   ITY   COST SAVINGS   CAPITAL   ENISSIONS SAVINGS   FULL   TOTAL   UTI ITY   COST SAVINGS   CAPITAL   EMISSIONS SAVINGS   FULL   FULL   DOLLARS   COST   TOTAL   FULL   SPEED.CO.L DERIVED BOILER   FORT   FULL   TOTAL   UTI   UT	TOTAL   UTI   TY   COST SAVINGS   CAPITAL   COST   CAPITAL   COST   CAPITAL   COST   CAPITAL   COST   COS	TOTAL   UTI   TT   COST SAVINGS   CAPITAL   COST			
01 ECS SIZE (F33)	99.	.47*	. 00	. 12	.00	.27	.31	. 00	. 00	. 35
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-: TAL	-104578 12	0 05165-	55558 0	-430202 10	112632 0	-142539 26	-331122 26	429152 0	134528 0	-1353743 27
EHISSICHS SAVINGS TOUS PER YEAR UTILITY TO	152294	55651	20256	472465	99163	172120	396558	516524	76864	1552243
LANT	-256872	-107601	35301	-902667	14469	-314659	-727680	210628	57664	-2905986
*** STRATEGY MATCH-T PITAL EMISSIGHS COST SAVINGS - \$000 RATIG P	-0.552	-0.754	0.000	-0.875	0.000	-0.742	-0.752	0.000	0.000	-0.809
CAPITAL ECOST S	2872580	1247913	0	5961968	•	1522607	3521862	•	•	13546644
SAVINGS DOLLARS \$000	6286	-70065	0	-298176	٥	116067	57339	0	0	298930
EPIZED) COST PATIO	0.025	-0.491	0.000	-0.752	0.000	0.271	9.117	0.000	0.000	0.120
COALLPULVEPIZED) UNILITY COST FUEL SKIINSS RATIO	142.4	8.42	18.9	2.11.5	7.16	103.5	315.3	205.4	72.5	1432.6
S 1EVEL CW SEED, TOTAL FUSE	73.0	15.4	0.0	64.7	0.0	50.4	2. 26	0.0	0.0	157.1
r - Fecce ribitions cathos patio	0.365	0.203	0.030	0.100	000.0	0.000	0.255	000.0	0.000	0.223
CTAS SEMEDAL SUMMADY - FOURES NO.11 ASTANCED TECHNOLOGIANDICELAL FUEL EN HIGH INCUSTRY PATIO S	HO.01 HEAT PACKING	10.02 EA 116	HOLDS MALT EELEPAGE	10.04 MS.EN FREDIC MILL	60.05 SAM MILL	HO.06 REMSFORM HILL	HOLOT KRITING PAPER HILL	HOLCE CORPUSATED PAPER	NO.09 EDK BOARD	HO.10 CHLOWINE

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	SAVINSS YEAR IY TOTAL	7747	TOTAL FUEL	4755 4755 3504 3504 3504 35131 3674 9074
	EMISSIONS SAVI TOHS PER YEAR PLANT UTILITY		TO OTHER SAVINGS	2197 144 2197 2197 2197 2197 2052 2052 2053
CH-T	EM)	-17958816 -35623040 -26433976 21604176 -26438976	COAL C	12867 3150 7126 7718 7718 7718 7404 7404 7404 7404 7404 7404 7404 740
*** STRATEGY MATCH-T			EOILER FUEL	1 55 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
*** STR	CAPITAL COST \$000	197446336 197446336 13026566 13026566	, OBV .	090000 00000
RALIUMAL SUMMERI IZED)	SAVINGS C DOLLARS \$200	830081 830081 350044 3530044 3530044	SAVINGS 10 CC GAS	00000 00000
RALICIAL RIZEDI	COST		TICHAL FUEL: FUEL SAVINGS FUEL SAVINGS FUEL SAVINGS FUEL FUEL	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
פזונאחרינ	UTILITY FUEL SA: INSS 10+1E BIL	16.40 16.40 16.40 16.40 16.40	316	
RALIE ELICH SPEED,COALIPULSERIZED)	1014 UTILITY FULL 52.11: 'S SA.1165 13-12 ETU 16-12 BTU	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	14162L PETP 645 018T	25.5 25.5 25.5 25.5 25.5 25.5 25.5 25.5
YEAR : 1990 FO.11 FOWNCED TECHNOLOGY, DIESE	C41E3C37	TOTAL ALL FILL SALTHIS CASES ONLY COST CALTINIS CACES CHLY ENTESICAS ON TAINS CASE CHLY FUEL A COST CANNASS CASES FUEL, COST E MISSION SAVINS	CATEGORY	SITE FUCS UTLUITY  1014L ALL  FUT SAWINS CASES ONLY  COST SALINGS CASES ONLY  COST SALINGS CASES ONLY  COST SALINGS CASES  FULLOST & FUESTIVA SALING  TYCUDING CAL FUEL CALEPSION  TYCUDING CAL FUEL CALEPSION  TYCUT SALINGS CASES ONLY  COST SALINGS  COST SALINGS CASES ONLY  COST SALINGS  C

01 ECS SIZE (FW)	.73	*11*	11.	*96.	.00	.56	.42	.27	.19	.84	.67	.75	.17	.83	7.37	55.	0.00	0.00	.03	77	00.	.36	.62	5.36	
SIS	€	•	Ŋ	•	•	4.	28	79	78	22	41	ın	7	•		c,			7	77.01	0	•	40	~	
HGS  TOTAL	76710	10204	72237	31390	111149	43163	90292	437755	120184	236232	64730	36298	33750	61419	16109	16205	10101	717096	1701662	78049	4864582	35324	112263	123715	
EMISSIONS SAVINGS TONS PER YEAR UTLITY TO	105567	14325	09066	45717	93163	61296	124062	602885	165863	292440	96268	53425	47196	65883	22147	14178	7532	16628	5019194	107103	521814	50718	154750	170025	
LANT	-28357	-4121	-26823	-14327	12986	-18133	-33770	-165131	-45679	-56208	-31537	-15127	-13446	-24408	-6039	-3973	93480	700469	-317532	-29054	4342768	-11854	-42487	-46310	1146 1146 1146 1146 1146 1146 1146 1146
*** STRATEGY MATCH-T PITAL EHISSIONS COST SAVINGS - \$000 RATIO P	0.552	0.451	0.553	0.312	000.0	0.378	0.553	0.553	0.552	0.364	0.441	0.218	0.470	0.549	0.513	0.372	000.0	000.0	0.385	0.554	0.000	0.299	0.552	0.553	i
*** STRAT CAPITAL E COST \$	541944	155677	329025	27844.4	0	166699	337662	1417484	410306	761599	218011	166643	133068	254627	71216	55210	0	0	7225882	335555	0	153367	431314	557114	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
. BOILER GRD COST SAVINGS DOLLARS TIO \$000	55735	9404-	31600	41518	0	83141	118762	390763	129180	566745	32566	73182	19659	106593	7430	16850	0	0	1851324	49567	0	81472	134148	118326	1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
ITR. BOII COST RATIO	0.143	-0.029	0.120	0.105	0.000	0.191	0.243	0.208	0.225	0.228	0.074	0.114	0.231	0.257	0.103	0.177	0.000	0.000	0.126	0.224	0.000	0.146	0.223	0.156	
I FIRED,PI UTILITY FUEL SAVINGS	93.7	13.4	95.6	42.7	7.16	58.2	9.86	566.7	156.4	269.9	89.9	6.64	44.1	60.3	20.6	13.2	7.0	16.2	1836.4	100.1	437.4	47.4	144.6	158.8	0000
S LEVEL IME,UIREC TOTAL FUEL AVINGS	56.7	7.4	53.4	21.8	0.0	51.0	56.3	323.2	63.8	192.0	43.6	27.8	54.4	9.44	12.0	7.4	0.0	0.0	1539.8	57.5	0.0	32.2	83.2	4.10	ା ବିନ୍ଦି ପର୍ଥିତ୍ର
ARY - PROCES 03Y,GAS TURE FUEL EHERGY SAVINSS RATIO S	0.364	0.185	0.368	0.202	0.000	0.258	0.373	0.373	0.372	0.287	0.258	0.159	0.320	0.366	0.340	0.257	0.00.0	0.00.0	0.271	0.374	0.000	0.203	0.375	0.334	•
CTAS GENEPAL SUPHARY - PROCE NO.12 ADVANCED TECHNOLOSY,GAS TUR FUEL ENERGY THDUSTRY SAVINSS RATIO	NO.01 NEAT PACKING	ND.02 BAKING	NO.03 MALT BEVERAGE	NO.04 HOVEN FASRIC MILL	NO.05 SAW MILL	KO.06 NEWSPRINT MILL	110.07 WRITING PAPER MILL	HJ.03 CORRUGATED PAPER	NO.09 BOX EDARD	NO.10 CHLORINE	NO.11 ALUMINA	KO.12 LOW DENS. POLYETHYL	HO.13 HI DENS. POLYETHYL	MO.14 POLIVINAL CHLORIDE	NO.15 STYRENE-BUT. RUB.	NO.16 HYLCH	NO.17 STIRENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	NO.23 INTESPATED STEEL	HOLES GPAY IRON FOUNDRY	MO.25 CCPFER	MO.25 MOTOR VEHICLE	TAL TAL SATING TSSTANS S CL & COST EL.COST &

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		1:GS TOTAL	25757712	10576933	10557373	15180/89	0		-	FUEL	* : :		8176	8176	8162	0 ;	8162	5		8176	8176	8162	0	8162	0
		EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	15317799	13960251	13952792	135/551	0		10141	OTHER FL SAVINGS			2197	1501	1489	929	6851	0		2197	1501	1489	969	6851	0
		EMISS - TORS MT	0.000130	-3403310	-3395411	13843237 -3395411	0			SA															
;	TCH-T	PLANT	7 30 1	0+8-	-339	1364			;	COAL			20646	14272	14246	6374	14240	0		20646	14272	14246	6374	14246	0
	TEGY MA								 	EOTLER FUEL	;		0	0	0	0	0	•		0	0	0	0	0	0
	*** STRATEGY MATCH-T	CAPITAL COST \$000	41547934	41567936	41269536	41269536	0	MIARY	10**12 BTU		1		0	0	0	0 -	0 (	0		ဝ	0	0	0	0	0
• •	021	ω	*	12699263	2707094	0 4602027	•	rrigs su	10**	3	1		0	0	0 1	0	٥ (	0		0	0	0	0	0	0
יארוייסי שעוסדו אוי	TR. EOILER G	S 1500	367	120	127	127		NATIONAL FUEL SAVINGS SUMMARY	FUEL SAVINGS -	9	1		-10795	-13376	-13354	\$050 100 100 100 100 100 100 100 100 100	-13354	0		-10795	-13373	-13354	5534	-13354	0
	FIRED, PE	UTILITY FUEL SAVINGS 10**12 ETU	95071	12631	10005	12554	0	HATIC	FUE	LL I	; ; ;		- 140 100 100 100 100 100 100 100 100 100	14.25	in (	0	606-	9		-425	-425	-405	0	-425	0
,	TUPDIME, DIMECT FIRED, PETR. COLLER GRD	TOTAL U' FUEL SAVINGS S. 10**12 BTU 10	1 8 1 3 k	6176	8162	0 5165	0		TEG INCOLLEGE		; ; ; ; ; ;		14708	9059	90 <i>72</i>	5503	9029	0		14768	6206	9339	5553	620e	0
	NO.12 ADVANCED TECHNOLOGY, GAS T	CATEGORY	707a1 611	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ENISSICHS SAVINSS CASE ONLY FUEL & COST SAVINCS CASES	FUEL, COST & EMISSION SAVINS			CATEGORY		SITE PLUS UTILITY	TOTAL ALL	FUEL SAVINGS CASES CHLY	COST SAVINGS CASES ONLY	EMISSIONS SAVINGS CASE CALY	FUEL A COST SATIRES CASES	FUEL, COST & EMISSION SATING	INCLUDING COAL FUEL CONVERSION	TOTAL ALL	FUEL SAVINGS CASES CHLY	COST SAVINGS CASES ONLY	ENISSICAS SAVINOS CASE ONLY	FUEL & COST STVINGS CASES	FUEL, COST & EMISSION SAVING
YEAR	€.		TOTAL	FUELS	1500	FUEL 8	FUELIC					STIE	TOTAL	FUELS	1000	[#I55]	FUEL	F.C.E.L.	INCLL	TOTAL	1001	CCST :	A COLLAND	1001111	FUEL

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SURBAR

07					
	VINGS LR TOTAL	3 26179136 4 10356104 6 10349160 1 15611046 6 10349160	TOTAL FUEL	6207 8207 8193 6193	4976 4976 4972 4972 0
	ENISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	1520960 1392459 1392459	TO' OTHER I SAVINGS	2197 1501 1489 696 1489	2197 1501 1489 1469 0
TCH-T	PLANT	10699539 - 3503944 - 3575430 14473430 - 3575430	CCAL	20619 14245 14220 6374 14220	9648 5474 3463 6374 6374 9633
*** STRATEGY MATCH-T		1 47000	BOILER	-16319 -16519 -16793 0 -16790	00000
* * *	CAPITAL COST \$000	40964784 40564759 40667200 40667200	U VED A TE	00000	000000
HATIONAL SUNDARY L DER.BLR CKO	S &	12918357 12918357 12926085 12926085	SAVINGS 5 10 CAS	00000	00000
HATICHA	1800	1	TIONAL FUEL SAVINGS FUEL SAVINGS E BOILER FUEL	6082 3493 3493 2553 4934 0	2564 0 0 0 0 0 0 0 0
. FIRED, CC	UTILITY FUEL SAVINGS 10+*12 BTL	14059 12505 12779 12779	OLE ILL	111 4 111 4 111 4	00000
HATICHAL SUND.	TOTAL UTILITY FUEL FUEL SAVINSS SAVINSS 10**12 BTU 10**12 BTU	2007 5013 5018 6918	HATUTAL PETR	14768 6205 6205 6205 6203	656 <b>3</b> 0 0 0 0 0
YEAR : 1900 NO.13 ADYANGED TECHNOLOSY,GAS 1		TOTAL —— ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CNLY ENISSICNS SAVINGS CASE ONLY FUEL & CCST SAVINGS CASES FUEL,COST & ENISSION SAVING	CATEGORY	SITE PLUS UTILITY TOTAL ALL FUCL SAVINGS CASES CRLY CGST SAVINGS CASES ORLY EMISSIONS SAVINGS CASE FUEL & CGST SAVINGS CASES FUEL, COST & EMISSIOM SAVING	INDUDING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINGS CASES CALY COST SAVINGS CASES CHLY ENISSIANS SAVINGS CASES FUEL & COST SAVINGS CASES FUEL, COST SENISSICH SAVING

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GASIFIER *** STRATEGY HATCH-T ENISSIONS SAVINGS ECS DOLLARS COST SAVINGS TONS PER YEAR SIZE TO \$600 RATIO PLANT UTILITY TOTAL (TW.)	31610 1576038 0.397 -16106 51337 35231 4.21*	-14425 346905 0.264 -2493 8647 6154 0.07*	.152 50470 917747 0.410 -12824 46279 33455 2.37*	.019 7455 896442 0.179 -9833 28197 18363 0.59*	.000 0 0.000 14469 98163 112632 0.00	.165 71532 382820 0.183 -7476 28726 21250 19.19	.302 147664 605104 3.357 -16224 58303 42079 13.16	.364 683676 3240791 0.412 -79630 283163 203533 55.03	0 207178 936094 0.411 -22159 77783 55625 36.13	.180 446540 1816571 0.181 -11352 131117 119766 10.09	.167 73910 555334 0.271 -18737 45444 26707 19.31	074 47264 456673 0.098 -7591 24986 17396 2.65*	.149 41819 394220 0.207 -8144 23348 15203 3.50*	.176 74428 736335 0.257 -15733 43416 27683 3.41*	0.171 12376 194864 0.365 -2929 10399 7470 3.41*	0.121 12875 170353 0.200 -2221 7829 5608 1.33*	.000 0 0.000 104155 7532 111687 0.00	.000 0 0.000 730461 1£628 7970£3 0.00	.354 5655854 33908224 0.422 -554474 2912674 2358201 83.30	.246 99314 951463 0.372 -14102 50401 36299 4.99*	.000 0 0.000 4342768 521814 4854532 0.00	093 51805 459716 0.138 -9474 28219 18745 5.21	5 155950 1205143 0.354 -20833 72687 51654 4.00*	162 122577 1555961 0.357 -25303 82565 57263 7.36	4216 4659652 904387 7636 4015515 315750 5143 400c269 315172
- FPOCESS LEVEL GAS TUTELME, DIPECT FIRED, COAL GASIFIER ENGREGY TOTAL UTLLITY COST SAN VIASS FUEL FUEL ATTO SAVINGS SAVINGS RATIO \$	0.205 21.5	9.697 3.9	.225 21.5	0.095 10.2	0.0 0.0	0.119 14.3	0.204 22.8	.231 130.6 266	9.228 35.6	0.144 95.6	0.106 12.9	.062 10.8	0.112 8.6	0.131 15.1	0.204 5.0	0.122 3.5	0.0 600.	0.00 000.0	.262 1704.4 2721	0.212 23.2	0.00 000.0	0.032 12.7	0.210 33.7	0.170 35.4	0 0 0 0 0 0 0 0 0 0 0 0
CTAS GENERAL SUBBARY - FPOCE NO.14 ADVANCED TECHNOLOGY, GAS TUT FUEL ENFPOR	HO.01 HEAT PACKING 0.3	MO. 02 BAKINS 0.0	NO.03 MALT DEVERAGE 0.0	MO.04 WOVEN FAERIC MILL 0.0	NO.05 SAW MILL 0.0	NO.06 NEWSPPINT MILL 0.3	HO.07 WPITHG PAPER MILL 0.3	NO.03 CORRUSATED PAPER 0.3	NO. 09 BOX BOARD 0.1	HO.10 CHLCRIME 0.	NO.11 ALUMINA 0.	NO.12 LOW DENS. POLYETHYL 0.0	NO.13 HI DENS. POLYETHYL 0.	RO.14 POLYVINT CHICAIDE 0.	NO.15 STIREME-BUT. RUB. 0.3	PD.16 HYLON	10.17 STARENE 0.0	HO.18 ETHYLENE 0.0	NO.19 PETPOLEUM REFINING 0.3	HO.20 TIRES 0.8	NO.23 INTEGRATED STEEL 0.0	NO.24 GPAY IRON FOUNDRY 0.1	MOLES COPPER	MOLOS MOTOR VEHICLE	C#SES CYLY C#SES CYLY THE GREEN

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HO.14 ADVANCED TECHNOLOGY, GAS	TURBINE, DIRECT FIRED, COAL GASIFIER	T FIRED,C	OAL GASIFI	ER	*** STR	*** STRATEGY MATCH-T	TCH-T			07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BI	1503	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	ENISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	SAVINGS FEAR FY TOTAL	
	1		ì	1	1		1	1	:	:
TOTAL ALL	5377	10840		21440752	134512064		12026342	42 11713595	395 23739936	36
FUEL SAVINGS CASES ONLY	5377	95.56		21440752	134512064		-2447143	-	147 7928399	66
COST SAVINGS CASES ONLY	5369	9570		21463400	133847120	_	-2442365	65 10355472	472 7917105	35
ENISSIONS SAVINGS CASE ONLY	0	1004		0	•	_	14473494		551 1581104¢	9+
FUEL & COST SAVINGS CASES	5369	9570		21463400	133347120	_	-2442365	65 10359472	72 7917105	92
FUEL, COST & ENISSIGN SAVING	0	0		0	•			•	0	•
		HATI	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS SI	UMHARY					
	1	Fu	FUEL SAVINGS	;	10**12 ETU	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	;			
CATEGCRY	HATURAL PE GAS DI	PETROLEUM DISTILLATE	PETROLEUM PETROLEUM DISTILLATE BOILER FUEL	GAS D	COAL DERIVED - DISTILLATE B	BOILER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL FUEL	
	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1						
SITE PLUS UTILITY										
TOTAL ALL	14758	-425	6092	•	•	-65	1065	2197	5377	
FUEL SAVINGS CASES CHLY	9009	-405	3438	0	0	- 95	-5309	1501	5377	
COST SAVINGS CASES CHLY	9079	1405	3493	0	0	-95	-5299	1489	5369	
ENISSICHS SAVINGS CASE OHLY	6563	0	2584	0	0	٥	6374	969	0	
FUEL \$ COST SAVINGS CASES	6009	-405	3493	0	0	- 95	-5299	1439	5369	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0	•	
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14039	-425	5399	O	0	0	2947	2197	5941	
FUEL SAVINGS CASES CHLY	5,476	-425	2015	0	0	0	-3427	1501	5941	
COST SAVINGS CASES ONLY	5477	-425	2310	0	0	0	-3417	1489	5934	
ENISSIONS SAVINGS CASE CHLY	5563	0	2534	0	0	0	6374	969	0	
FUEL & COST SAVINGS CASES	5477	-425	2510	0	0	•	-3417	1489	5934	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0	0	

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NO.15 ADVANCED TECHNOLOGY, GAS TO	CSY, GAS TUPE FIFE FREECY	ESS LEVEL PBINE,DIRECT FIRED,COAL(PFB) Y TOTAL WITHITY COST	T FIRED,CO	DAL(PFB) COST	SAVINGS	*** STRA	*** STRATEGY MATCH-T PITAL EMISSIONS		EMISSIONS SAVINGS	SS	01 ECS
INDUSTRY	SAVINGS RATIO		FUEL	RATIO	001LARS \$000	\$000	SAVINGS	PLANT	TONS PER YEAR UTILITY	TOTAL	SIZE
NO.01 NEAT PACKING	0.257	32.9	71.4	900.0	2960	1750547	0.435	-26919	76394	49465	6.35
HO.OZ BAKING	0.138	5.5	12.1	-0.112	-16006	400218	0.360	-4610	12999	6389	0.10*
MO.03 MALT BEVERAGE	0.225	23.0	72.1	0.003	2238	1202577	0.413	-30682	77126	55595	4.00.4
HO.04 WOVEN FAERIC MILL	0.129	13.9	44.5	0.017	1619	1039318	0.257	-21279	47595	26316	1.01*
HO.05 SAW MILL	0.000	0.0	91.7	000.0	0	•	000.0	14469	98163	112632	00.00
NO.06 NEUSPRINT MILL	0.170	20.4	41.7	0.189	82591	435260	0.253	-14540	43959	29419	29.89
HO.07 KRITINS PAPER MILL	0.281	35.8	75.1	0.301	147152	968262	0.453	-31935	99556	62551	21.71
NG.03 CORRUGATED PAPER	0.282	205.7	428.4	0.312	585302	3966098	0.453	-153679	455738	302059	90.14
HO.09 BOX EOARD	0.234	56.3	117.6	0.314	180716	1138557	0.455	-41768	124702	95629	58.94
NO.10 CHLCRINE	961.0	129.7	228.3	0.206	511296	2447611	0.268	65669-	247384	177434	19.41
HO.11 ALUHINA	0.131	21.3	63.2	0.068	30086	799371	0.320	-43584	89128	45543	36.80
NO.12 LOW DENS. POLYETHYL	9.074	12.9	42.8	170.0	45596	609317	0.141	-20912	45851	05653	4.974
HO.13 HI DEHS. POLYETHYL	0.154	11.7	39.2	0.157	16155	516463	0.310	-19234	41995	22762	24.9
HO.14 FOLYVINYL CHLCRIDE	0.169	21.7	68.7	0.189	79328	928732	0.377	-32835	73464	40630	5.88
HO.15 STIRENE-BUT. RUB.	0.211	9.9	16.3	090.0	4311	236816	0.383	£559-	17457	10544	5.84
NO.16 NYLON	0.147	4.3	13.2	0.115	12223	219392	0.284	-6235	14179	7944	2.46*
NO.17 STYPENE	0.000	0.0	7.0	0.000	0	0	0.000	104155	7532	111687	0.00
NO.18 ETHYLENE	0.000	0.0	16.2	0.000	0	0	0.000	780461	16628	797088	0.00
HG.19 FETROLEUM REFINING	0.272	1719.9	2521.2	0.324	4774323	31817296	865.0	-559766	2699736	2138970	77.99
NO.20 TIRES	9.214	31.9	95.5	0.110	44387	1364551	0.414	-44271	102170	57399	10.34
NO.23 INTEGRATED STEEL	0.000	0.0	497.4	0.000	0	0	000.0	4342768	521814	4864582	0.00
NO.24 GRAY IPON FOUNDRY	0.083	12.9	23.4	0.217	121151	461941	0.133	-12336	30408	18072	59.5
NO.25 COPFER	0.213	34.1	69.8	0.214	125727	1229078	0.347	-25201	74646	45446	4.15*
NEV ROTOR VEHI	+61.0	40.9	0.96	0.130	13586	1697479	0.395	-38501	102767	99269	9.29
TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES CHLY EHISSICHS SAVINGS CASE CHLY FUEL & COST SAVINGS CASES FUEL, COST SAVINGS CASES	>- (1		4154 4154 4154 4154 4154	•	6136689 6136689 6136689	5300000 53000000 530000000 500000000000	i	1	\$115335 4471200 4458201 644137 4456201	9152012 3266023 3257634 58855939 5257634	

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TEAM : 1999 HO.15 ADVANCED TECHNOLOGY, GAS	TUPBINE, DIRECT FIRED, COAL(PFB)	r FIRED,C	OAL(PFB)		*** STRATEGY MATCH-T	GY MAT	H-1				07
CATEGORY	10TAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 1012 BT	cost s	SAVINSS COLLARS \$000	CAPITAL COST \$000		EP.	EMISSICHS SAVINGS TONS PER YEAR PLANT UTILITY TO	ā	S  TOTAL	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	•				1			!	
T013L ALL	6369	15281		18815576	146645104		10476428	14395802		24876224	
FUEL SAVINGS CASES ONLY	6239	12021		19513576	146645104		-3997057	_		9065188	
COST SAVINGS CASES ONLY	6329	12004		13649264	145877968		-3989221	_		9049108	
EMISSICHS SAVINGS CASE CHLY	0	1254		0	0		14473494	1337551	7	5911046	
FUEL & COST SAVINGS CASES	6319	12004		18349264	145677968		-3938221	21 13037337		9016506	
FUEL, COST & EMISSION SAVING	0	0		0	0			0	0	•	
		HATI	NATIONAL FUEL SAVINGS SUMAARY	SAVINGS SI	JINARY						
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	14	FUEL SAVINGS		10**12 BTU						
CATEGORY	HATURAL PE G.S DI	PETFOLEUM DISTILLATE	PETFOLEUM PETROLEUM DISTILLATE EOILER FUEL	6AS	COAL DERIVED DISTILLATE BOILER FUEL	83; <sub>-</sub> 1	COAL FUEL	OTHER SAVINGS	TOTAL FUEL		
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	,		1		-		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		,	
SITE PLUS UTILITY											
13121 411	14768	-425	6032	0	0	0	1932	2197	6386	œ,	
FIEL SAVINGS CASES ONLY	6236	1405	3493	0	•	0	-4392	1501	6388	œ,	
CUST STVINGS CASES CHLY	9229	1425	3+93	0	0	0	-4335	1469	6329	۰	
ELISSICHS SAVINGS CASE ONLY	35o <b>3</b>	0	522	0	0	0	6374	959		•	
FUEL & COST SAVINGS CASES	6200	-405	3493	0	0	0	-4355	1489	6379	۰	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0		0	
INCLUDING COAL FUEL CONVERSION											
TOTAL ALL	14769	-425	6082	0	0	0	1982	2197	6333	٥	
FUEL SAVINGS CASES ONLY	6009	405	3409	0	0	0	-4392	1501	6389	ō.	
COST SAVINGS CASES CHLY	6200	34-	3493	0	0	0	-4385	1439	6379	•	
ENISSIONS SAVINGS CASE CHLY	8553	0	4862	0	0	0	6374	669			
FUEL & COST SAZINSS CASES	6006	-425	3493	0	0	0	-4385	1489	6379	ŗ	
FUEL, COST & ENISSION SAVING	0	0	0	0	•	0	0	•			

01 3218 812E	16.2	470.0	1.59*	0.35*	0.00	12.58	9.73	40.95	82.92	8.41	14.39	90.2	2.35	2.24	2.34	#Z6.0	0.00	00.00	76.45	3.55	0.00	2.94	5.86	5.37	
N5S  TOTAL	17814	2828	16175	0878	112632	11836	26272	126788	33885	90157	13569	9569	7161	12933	3793	2429	111687	797088	1368310	19993	4864582	4224	26307	33784	7719968 1833979 1831051 5625969 1831051
ENISSIONS SAVINGS TOUS PER YEAR UTILITY TO	32961	5203	28600	15636	98163	17631	40533	193010	53201	102603	31872	17979	14614	26578	6663	5014	7532	16628	1914561	33510	521614	14699	48524	56538	3309065 2664928 2659725 644137 2059725
LANT	-15147	-2375	-12425	9569-	14469	-5795	-14261	-71222	-19316	-12446	-18303	-11033	-7454	-13645	-2870	-25°	104155	195087	-546251	-13517	4342768	-10475	-22217	-22754	0 0 0 0 0
STPATEGY MATCH-T LL ENISSIONS : SAVINGS -	102.0	0.121	0.253	0.085	0.000	0.102	0.223	0.295	0.252	0.136	0.155	0.039	0.097	0.120	0.227	0.037	0.000	0.000	0.298	0.205	0.000	0.031	0.185	0.211	i
CAPITAL ECOST S	1302256	264027	645279	638316	•	326312	747607	2956542	873143	1729412	405914	630546	335237	120029	163074	146990	0	0	27525588	636826	0	384334	1075354	1324029	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SAVESS DOLLARS \$000	3615	-18434	28325	3669	0	47683	105217	567408	148328	364573	57175	18212	23517	41674	6956	5536	0	0	4761016	61428	0	93264	92137	74367	6499823 6498823 6597257 6597257
COSLIAFB)	600.0	-0.129	0.109	600.0	0.000	0.109	0.215	0.302	0.258	0.147	0.129	0.029	0.054	660.0	0.132	0.052	000.0	0.000	0.323	0.152	0.000	0.167	0.157	0.098	•
F1260 LTT UCL INSS	30.8	6.7	26.7	14.6	91.7	16.7	32.2	185.1	50.2	4.7	29.8	16.8	13.6	6.43	6.3	4.7	7.0	16.2	1759.6	31.3	437.4	13.7	45.3	52.8	டுறையில் வேட்ட
a a	14.1	2.3	13.2	7.0	0.0	10.5	19.0	103.5	29.1	89.5	8.2	3.5	5.2	9.3	3.3	1.7	0.0	0.0	1278.1	16.5	0.0	3.1	21.2	03.0	10011
·	0.134	0.055	0.167	0.065	0.000	0.008	0.170	0.215	0.183	0.134	0.074	220.0	6.063	0.031	0.156	0.059	0.000	0.000	0.229	0.151	0.000	0.020	0.132	0.134	
CTAS GOMERAL SUPDARY - POGESS LEVEL ROLLO ACTANCEO TECHNOLOSTIGAS TUDENHALTHO FUEL REEST TOTAL THUUSIEL PATIO SAVINGS PATIO SAVINGS	ROLOI NEAT PACKING	MOLES BARINS	HO.03 HALT BEVERAGE	NO.04 GOVEN FAERIC MILL	KO.05 SAW MILL	HO.06 REUSTRINT MILL	NO.07 ERITING PAPER MILL	KO. 03 COMPUSATED PAPER	HO.00 EON BORRD	KJ. 10 CHLCPINE	RO. 11 ALUMINA	HOLLS LOW DERS, POLYETHYL	KO.13 HI DENS. FOLYETHYL	RO.14 POLYVINIL CHECPIDE	KO.15 STIPERE-EUT. PUB.	кэ.16 илси	NO.17 STIRENE	NO.18 ETHILENE	KO.19 PETEOLEUM REFINIKG	HO.20 TIRES	HO.23 INTEGPATED STEEL	HO.24 SPAY IPON FOUNDRY	MO.25 CCPPER	.26 MOTGP VEHICLE	TOTAL ALL FUEL SAVINGS CASES CHLY CONT CATTONS CASES CHLY EMISSIONS CAVINGS CAGE CHLINEL E C'SI SAVINGS CACES FUELCOST & PHISSION SAVINGS

- CCGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURNARY

10.16 ADVANCED TECHNOLOGY, GAS	TURBINE, INDIRECT FIRED, COALLAFB)	CT FIRED	,COAL(AFB)		*** STRATEGY HATCH-T	TEGY MA	TCH-T			
CATEGORY	TOTAL U LITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	U LITY FUEL SAVINGS 10**12 BTI	COST S	SAVINGS DOLLERS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	SAVIHG YEAR ITY	S  TOTAL
		1 7						1	ì	
TOTAL ALL	1501	7653	_	6691168	114612996		99206121			0410040
FUEL SAVINGS CASES CHLY	4057	6239		16391168	114612396		-2323218	_	6530270	4607053
COST SAVINGS CASES ONLY	4053	6329	-	16926512	114068464		-2318665	Ī	1297	4601633
ENISSIONS SAVINGS CASE ONLY	0	1254		0	0		14473494	194 1337551		15811046
FUEL & COST SAVINGS CASES	4053	6359	-	16926512	114068464		-2318665	_	6920297	4601633
FUEL, COST & EMISSION SAVING	0	0		0	٥			0	0	0
		HATI	HATIOHAL FUEL SAVINGS SUMMARY	AVINGS S	UHHARY					
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		FUEL SAVINGS	10*	10**12 BTU	1	:			
CATEGORY	NATURAL PET GAS DIS	PETROLEUM DISTILLATE	PETROLEUM BOILER FUEL	GAS D	COAL DERIVED DISTILLATE BOI FU	EDILER FUEL	COAL	OTHER SAVINGS	TOTAL FUEL	
		!	1			-			-	;
SITE PLUS UTILITY										
TOTAL ALL	14769	-425	6032	0	0	0	-350	2197	3	4057
FUEL SAVINGS CASES ONLY	9029	-425	3499	0	•	٥	-6724	1501	7	4057
COST SAVINGS CASES ONLY	9079	-425	3493	0	0	•	-6710	1489	3	4053
ENISSIONS SAVINGS CASE ONLY	8553	0	2584	0	•	0	6374	969		0
FUEL & COST SAVINGS CASES	9029	-425	3493	0	0	0	-6710	1489	3	4053
FUEL, COST & EMISSICH SAVING	0	0	0	0	0	0	0	0		0
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14769	-425	6082	0	0	0	- 350	2197	3	4057
FUEL SAVINGS CASES ONLY	9029	-425	3499	0	0	0	-6724	1991	¥	4057
COST SAVINGS CASES ORLY	6009	-425	3493	•	0	•	-6710	1469	7	4053
ENISSIONS SAVINGS CASE CHLY	659 <b>3</b>	0	2584	0	0	0	6374	<b>6</b> 95		0
FULL & COST SAVINGS CASES	9009	525-	3493	0	0	0	-6710	1469	7	4053
FUEL, COST & ENISSION SAVING	0	0	•	0	0	0	c	0		0

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01 ECS SIZE (194)	7.53	0.17#	2.82*	1.49*	00.0	42.72	32.51	86.44	03.10	27.83	52.00	7.37	9.05	8.23	9.20	3.59#	0.00	0.00	70.31	13.40	00.0	1.39*	4.77*	19.21	
HGS  TOTAL	64271	12504	37402	39665	112632	38510	85267	404560	109782	230159	62746	37911	33109	59022	15301	11871	111687	797088	1056687	76436	4864582	2507	57950	121419	8443649 2557660 663609 5685589 663509
EHISSIGNS SAVINGS TONS PER YEAR T UTILITY TO	00160	20359	53210	69310	98163	61335	137948	639952	171690	345713	116306	66221	57486	100023	56804	20166	7532	16628	1788506	129139	521814	7114	83469	50902	4933264 4169149 1044053 644137 1044053
LAH	-24829	-7795	-15808	-28645	14469	-22826	-52682	-235392	-61903	-115554	-53560	-28310	-24378	-41002	-11003	-8296	104155	780461	-732119	-52702	4342768	-4607	58452-	-84536	3610362 -1631435 -390443 -5241052 -360443
STRATEGY MATCH-T NL EMISSIONS F SAVINGS -	0.508	0.468	0.423	0.387	0.000	0.331	0.470	9.476	0.479	0.348	0.370	0.214	0.450	0.457	0.429	0.424	000.0	0.000	0.237	0.458	0.000	0.018	0.407	0.457	i
*** STRAT CAPITAL E COST 5	1226504	645458	722313	1027261	0	415486	917105	3834690	1056048	2284312	739554	519472	426530	749361	203532	18174+	0	0	12064640	1145794	•	121936	923787	1059728	31067248 31067248 7470364 7470364
B.G. SAVINGS DOLLARS \$000	-3310	-54354	-18365	-22399	0	96065	16439	-4070	30047	338208	-69427	54729	24860	21061	-17851	\$269	•	0	-962184	-46874	0	-10522	61234	-103740	574599 574599 574599
COAL DER. COST RATIO	-0.009	-0.351	-0.072	-0.056	000.0	0.113	0.038	-0.002	0.052	0.136	-0.157	650.0	0.089	0.050	-0.247	0.065	0.000	000.0	-0.0c5	-0.116	000.0	-0.019	0.10+	-0.137	
	63.3	19.0	49.7	63.8	91.7	58.2	109.7	601.6	161.9	319.1	105.6	61.9	53.7	93.5	25.0	16.8	7.0	16.2	1671.2	120.7	4.67.4	6.7	73.0	192.4	66 66 66 66 66 66 66 66 66 66 66 66 66
55 LETEL 51HE (CLOSED 707AL ( FUEL SAVIGSS ()	50.5	8.5	0.63	24.8	0.0	26.7	48.6	230.6	77.3	166.1	35.9	23.4	20.6	37.9	10.3	7.5	0.0	0.0	755.0	43.9	0.0	2.9	45.3	77.7	1777 1777 1777 153 153 153
CGY,GAS TUB CGY,GAS TUB FUEL ENERGY SAVINGS PATIO	0.350	0.195	0.285	0.230	0.000	0.222	0.300	0.311	0.316	0.248	0.191	0.134	0.269	0.251	0.258	0.263	0.000	0.000	0.139	0.231	0.000	0.019	0.283	0.253	
CTAS GENERAL SUMMARY - PROCESS LEVEL NO.17 ADVANCED TECHNOLOGY, GAS TURBINE, CLOSED CYCLE FOLE ENERSY TOTAL UTILITY ENERSY SAVILOS FOLL FUEL PATIO SAVINOS SAVINOS	HO.01 HEAT PACKING	HO. 02 BARINS	HO.03 MALT BEWERAGE	ROLOW HOVER FABRIC HILL	RO.05 SAW MILL	KO.06 HEKSPPINT HILL	HO.O7 KRITHS PAPER HILL	NO.05 COFFUSATED PAPER	HO.09 PON ROAPD	NO.10 CYLOPINE	RO.11 ALUMPA	NO.12 LOW DEMS. POLYETHYL	HO.13 HI DEHS. POLYETHYL	HO.14 FOLYVINTL CHICRIDE	NO.15 STIPENE-BUT. RUS.	HO.16 PYLON	HO.17 STYRENE	MO.18 ETHYLENE	NO.19 FEIROLEUM REFINING	NO.20 TIPES	NO.23 INTEGRATED STEEL	holie4 GPAY IPON FRUNDRY	HD.25 COFPER	HOTOP VE	AL — ALL L SAVINGS CASES CHLY SSICHS SAVINGS CASE OF L E COTT SAVINGS CASE L COTT SAVINGS CASE

- COSEMERATION TECHNOLOGY ALTERNATIVES STUDY -

	-	בויכאייו זה	COSEIGENTION TECHNISTON ALIERIATIVES STOOM	SUPPLARY	TIC CATIV	i R				
YEAR: 1990 HO.17 ADVAHCED TECHHOLOGY,GAS 1	TURBINE,CLOSED CYCLE, COAL DER. B.G.	CYCLE,	COAL DER.	B.6.	¥** 21	*** STRATEGY MATCH-T	TCH-T			07
CATEGC9Y	TOTAL U FUEL SAVINGS S 10**12 BTU 1	UTILITY FUEL SAVINGS 10**12 BTU	5 1500	SAVINGS DOLLARS \$000	CAPITAL COST \$000		EPLANT	EMISSIONS SAVINGS TONS FER YEAR PLANT UTILITY TO	AVINGS EAR Y TOTAL	
	1 1 1 1 1	1 1	;	1		:	1			:
TOTAL AIL	5826	14364		-811351	100872560	0.0	8981893	3 15647115	15 24528992	26
FUEL SAVINGS CASES DRILY	5326	13110		-811351	100872560	20	-5591592	_		58
COST SAVINGS CASES CHLY	2324	5119		2376195	19942832	32	-2174192	2 5772635	35 3598441	
ENISSIONS SAVINGS CASE ONLY	0	1254		0		0	14473494	1337551	51 15311046	46
FUEL & COST SAVINGS CASES	2354	5119		2376195	39942832	32	-2174192	2 5772635	35 359841	41
FUEL.COST & EMISSION SAVING	0	0		0		•		0	•	•
		HATI	HATIOHAL FUEL SAVINGS SUMMARY	SAVINGS 5	UTHARY					
CATEGOFY	HATURAL PET GAS DIS	PETROLEUM DISTILLATE	FUEL SAVINGS PETROLEUT PETROLEUM DISTILLATE BOILER	10 CO GAS	10**12 BTU - COAL DERIVED DISTILLATE	BOILER	COAL	OTHER	TOTAL FUEL	
	1 1 2 3 4 1 1	) ) 1 1	1	; ; ;	1					
SITE PLUS UTILITY										
TOTAL ALL	14768	-425	6082	0	0	-19505	20924	2197	9285	
FUEL SAVINGS CASES ONLY	6200	-405	3499	0	0	-19505	14550	1051	5626	
COST SAVINGS CASES ONLY	1045	0	770	o	•	-5337	5800	46	2324	
EMISSICHS SAVINGS CASE CHLY	0503	0	2564	0	•	•	6374	969	•	
FUEL # COST SAVINGS CASES	5501	0	770	0	0	-5337	5800	9,	5324	
FUEL, COST & ENISSION COVING	o	0	0	0	•	0	0	9	•	
INCLUDING COAL FUEL CONVERSION										
TGTAL ALL	8563	٥	2584	0	•	•	6317	2197	1444	
FUEL SAUTIOS CASES CRLY	0	0	0	0	0	0	-57	1501	1444	
COST SAVINGS CASES CHLY	0	0	•	0	0	0	769	95	818	
EMISSIONS SAVINGS CASE ONLY	8553	0	2584	0	0	0	6374	969	0	
FULL & CCST SAVINGS CASES	0	0	0	0	0	0	769	9,	815	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0	۰	

812E \$12E (FEA)	5.23	0.11*	4.10*	0.43*	0.00	27.11	21.19	77.51	49.00	15.66	43.35	5.05	7.13	3.64*	5.54	2.56*	0.00	0.00	29.98	6.36	0.00	0.63*	4.37*	5.72	
.65  TOTAL	39156	9219	36729	8822	112632	22471	49416	224727	61472	122461	29614	17016	14302	17970	7502	5262	111687	797088	160395	23201	4864582	-1439	28557	27323	6808319 923772 840391 5895989 641830
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	60538	12784	75209	19139	99163	39267	26293	370246	22866	190596	46277	44127	44017	45336	15781	13946	7532	16628	495317	59403	521814	3152	73451	29490	2555370 1906084 1707530 644137 1704678
LAPIT	-21392	-6007	-39480	-10316	14469	-15796	-39877	-151518	-36350	-68136	-64663	-27111	-29116	-27416	-8279	-8685	104155	780461	-314922	-36202	4342768	1655-	-44895	-32166	4254943 -032316 -032316 -037441 5241852 -062850
*** STRATEGY MATCM-T PITAL EMISSIONS COST SAVIN:SS -	005.0	162.0	0.332	9.086	0.000	0.193	0.375	0.383	0.390	0.165	0.201	960.0	0.203	0.167	0.290	0.188	000.0	000.0	0.057	0.238	000.0	-0.011	0.200	0.171	i
64 STRAT CAPITAL E COST S	1475049	643309	1223002	878766	•	386122	881569	3310659	937185	2078547	856121	625027	105675	737943	228323	246530	•	•	8559009	1095550	•	193772	1331463	1391086	27836976 27836976 27613216 24030192 23896432
SAVINGS DOLLARS \$000	45390	-41314	-1187	-31159	o	79696	152452	110359	202892	450539	-2967	34349	30439	43571	3641	5845	•	0	5207847	48535	0	94926	77097		7112%0 7112%0 7157333 716733
	0.113	-0.263	-0.635	-0.079	0.000	0.183	0.311	0.350	0.353	0.162	-0.007	0.054	0.108	0.103	0.050	0.055	0.000	0.000	0.353	0.120	0.000	0.175	0.131	0.063	
CYCLE,CO 11.177 FUEL VINGS	£6.6	6.11	70.3	17.9	91.7	36.3	70.2	353.7	7.	175.9	83.1	41.2	41.1	4.54	14.7	13.0	7.0	16.2	462.7	55.5	437.4	6.	68.6	-	2375 1770 1865 662 1595 0
EINE,CLOSED TOTAL UI FULL SAVINCS SA	31.6	\$.4	0.32	5.7	0.0	9.91	29.0	168.4	47.4	47.4	4.7	ø.	بع ه.	8.5	4.4	1.9	0.0	0.0	163.7	10.4	0.0	9.0-	14.2		623
CST.6AS TUTE FUEL ENERGY SAVINGS RATIO S	0.278	0.112	0.153	0.053	0.00.0	0.130	0.237	0.357	6000	0.146	0.028	0.039	0.043	9.0.0	0.155	993.0	0.000	000.0	0.033	3.045	000.0	+00.0-	0.089	0.037	` ► დ
HOLIS ZOLKIGED TECHNOLOFIGAS TURNING FUEL ENERGY SAVINGS SAVINGS RATIO	HOLOT MEST PACKING	83,0, 53, 133	HO 03 MALT BEVERAGE	HO.C4 MOVEN FRERIC HILL	HO.05 SAW ITCL	R.J. 05 NEWSTRINT MILL	1.0.07 KPITING PAPER HILL	HO.08 COPPUSATED TAPER	HO. 09 FOX EOMED	NO.10 CHLOPINE	HO. II ALUMINA	HO.12 LOW DERS. POLYETHYL	HO.13 HI DENS. POLYETHEL	NO.14 FOLYVINKE CHLOPIDE	NO.15 ST POWE-EUT, PUB.	K3.16 Biley	HOL17 STIPENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	HOLDO TIMES	HO.23 THTECFATED STEEL	MOLEY COAY IFOY FOUNTRY	PO.25 COPPER		107AL ALL FULL SALTES CASES ONLY CUST SALTES CASES ONLY FULS SALTES CASES ONLY FUEL & CUST SALTES CASE ONLY FUEL & CUST SALTES CASES FUEL ONLY 8 FACISTICAL SALTES

- COSEMERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUNNARY

0.7		•	ō	7		<b>•</b> !	20																		
	165  TOTAL		19611648	3503377	3393477	15911046	0			ifal Fuel	;		2471	M/73	2361	o	2302	0		2471	2473	2361	0	2362	
	EHISSIONS SAVINGS TONS PER YEARLANT UTILITY TO		9023346	1679756	6503634	1337551	746/449			5					75		1397	•					969	1397	
	EMISSIC TONS I		_		•					OTHER SAVINGS			2197	1423	1475	•	<u> </u>			2197	1423	1475	•	13	•
TCH-T	PLANT		10536309	-3876377	-3110151	\$6.487.448 	0		;	COAL	:		-1935	-8150	-7358	0374	+011-	0		-1935	-3156	-7853	637+	-7704	•
TEGY MA										DOILER FUEL			0	0	0	•	0	o		0	0	0	0	:	
*** STRATEGY MATCH-T	CAPITAL COST :000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	94416640	67055576	60062928	0	07516967	THARY	104417 8711	س ۾			٥	o	0	c	0	0		0	•	0	0	0	, .
	SAVINGS DOLLARS \$000		19009152	15321934	19100704	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	HATIOHAL FUEL SAVINGS SUMMARY	į	645			0	0	0	0	0	0		0	0	0	0	٥	, «
ALEAFB)	COST	i						AL FUEL	2011/12	ETROLEUR EDILER FUEL			€032	មើល ក្រុ	3051	\$ 000 d	3047	0		2609	3.15	3051	*050	30-7	,
כיכוניכסי	UNILITY FUEL SAVINGS 1012 BTU	1	8363	7008	5910	す。 () () ()	† 0 0 0	1177		OLEUM ILLAT			-425	574-	-17	ဂ	-17	o		-425	-4:5	-1.7	0	-17	. '
TUPBINE,CLOSED CICLE,COAL(AFB)	TOTAL UFUEL SAVIESS S	1	2471	2473	1361	0	0			HATUPAL PET GAS DIS			14763	c 135	6710	E 23	5033	o		14768	4135	5713	(1.57	65.53	
TEP": 1990 HO.18 ADVANCED TECHNOLOGY,GAS TU	CATEGOPI		Att	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES CALT	ENISSIONS SAVINSS CASE ONLY	FOEL & LOST SANISAS CAUES FUEL,COST & EMISSION SAVING			CATEGORY		SITE PLUS UTILITY	10141 111	AVINCS CASES CHLY	ACTRON CARES OVER	ENITORIONS STORAGE CASE CALL	C05T 5477765 CASES	FUEL, COST & ENTSCION SAVING	INCLUDING COAL FUEL CONVERSION	TO'AL ALL	ALINES CALES ONLY	COST SYSTEMS CASES ONLY	1360 3670 S 47570 SS	Self Color Signature 1900 1 17 1	
1627 1:3.1	3	1 1 1 1	TOTAL	FUEL SI	COST SE	ENISSIC	FUEL,CC			J		SITE	10101	5 1:15	15 <b>1</b> 500	EHISK	11:11	FUELICO	2010:4	TO-41	FLEEL 53	\$ 1000	2162113	1.7	

01 ECS SIZE (181)	3.05	0.22*	7.67*	1.76*	0.00	9.60	2.70	3.84	7.30	5.59	2.32	14.71	0.37	9.86*	+0.1	4.27*	0.00	00.0	00.0	80.8	0.00	69.2	2.87	2.98	
 TAL	100512 13	17519 (	94748	52853	111149 (	55304 59	118454 42	573909118	157707117	431418 55	86248 62	78319 14	43368 10	78868	21100 11	15784 4	101012 (	717096 (	2710745 (	101957 16	4864582 (	43434 12	146806 12	161859 22	10334744 2330161 2060035 8504584 2060035
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	157529	27464	148236	83274	98163	67545	185592	900250	247823	706702	143242	135649	68013	123504	33046	24680	7532	16628	313959	159275	521814	68738	230125	253296	
LANT	-57016	9566-	-53488	-30421	12986	-32241	-67138	-326341	-90116	-275264	-56994	-57330	-24646	-44636	-11947	-8896	93480	700469	2396786	-57318	4342768	-25305	-83319	-91437	6142670 -1403815 -1214429 7546488 -1214428
*** STRATEGY MATCH-T PITAL EHISSIONS COST SAVINGS - 5000 RATIO P	0.526	0.526	0.527	0.526	0.000	0.484	0.527	0.527	0.526	0.530	0.445	0.447	0.527	0.527	665.0	0.528	000.0	0.000	0.000	0.528	0.000	0.335	0.527	0.527	
*** STRACCAPITAL COST \$	728294	238991	429643	417868	0	192789	429480	1824102	523160	1476019	291830	329733	171519	314959	92229	82759	0	0	0	456358	0	181227	569816	745795	9496647 9496647 7715611 0 7715611
H B.G. SAVIHGS DOLLARS \$000	-24003	-17510	-36316	57953	0	86324	37204	702	21559	368539	-29970	63760	51874	594,38	-7482	18831	0	0	O	17261	0	61660	31892	1640	733371 763371 898657 898657
PETROLEU COST RATIO	-0.062	-0.123	-0.138	0.146	0.000	0.198	9.076	0.000	0.037	0.149	-0.068	0.131	0.165	0.141	-0.103	0.177	0.000	0.000	0000.0	0.043	0.00.0	0.111	0.054	0.005	
DIR.FIRED, PETROLEUM B.G. UTILITY COST SAVIN FUEL DOLL SAVIN:SS RATIO \$00	147.3	25.7	138.6	77.8	7.16	03.1	147.6	846.2	233.7	652.2	133.8	126.8	63.5	115.5	30.8	23.0	7.0	16.2	293.3	143.8	487.4	64.3	215.0	236.5	4406 3510 3034 596 3034 0
ESS LEVEL IMJECT.6/T.D f TOTAL L FUEL SAVINGS S	62.3	10.8	58.6	32.3	0.0	34.0	6119	355.2	97.6	244.0	48.6	40.2	26.8	48.9	13.2	4.7	0.0	0.0	0.0	63.1	0.0	5.82	91.3	100.4	1427 1427 1234 1234 1234
	0.305	0.216	0.307	0.300	000.0	0.283	0.310	0.310	0.309	0.297	0.228	0.231	6.311	0.312	0.290	0.311	0.000	0.00.0	0.00.0	0.312	000.0	0.184	0.312	0.286	
CTAS GENERAL SUBBARY - PROC NO.19 ADVANCED TECHROLOGY,STEAN FUEL EHERG INDUSTRY SAVINGS RATIO	NO.01 MEAT PACKING	HO. 02 BAKING	RO.03 MALT BEVERAGE	HO.04 WOVEN FABRIC MILL	HO.05 SAH MILL	NO.06 NEWSPRINT MILL	NO.07 WRITING PAPER MILL	HO.38 CORRUSATED PAPER	HO.09 EON BOARD	NO.10 CHLORINE	NO.11 ALUMINA	MO.12 LOW DEMS. POLYETHYL	NO.13 HI DENS. POLYETHYL	MO.14 POLYVINYL CHLORIDE	NO.15 STYREME-BUT. RUB.	HO.16 NYLON	HO.17 STYREHE	NO.18 ETHYLENE	HO.19 PETROLEUM REFINING	tio.20 TIRES	HO.23 INTEGRATED STEEL	HO.24 GRAY IRON FOUNDRY	HO.25 COPPER	MO.26 MOTOR VEHICLE	ALL S CASES CHLY S CASES CHLY AVINGS CASE SAVINGS CASE EHITCION SA

- COSENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURMARY

YEAR : 1990

NO.19 ADVANCED TECHNOLOGY,STEAM INJECT.G/T,DIR.FIRED,PETROLEUM B.G	M INJECT.G/T,	DIR.FIRED	, PETROLEUM	в. 6.	LS ***	*** STRATEGY MATCH-T	TCH-T			07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 ETU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT	COST S	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	AVINGS EAR Y TOTAL	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1	1	1		•	1	1		•
TOTAL ALL	588¢	16339		3619200	37362944	4 4	12525880	30 17859650	.50 30385568	<b>6</b> 0 5
COST SAVINGS CASES ONLY	5063	12369		4115407	31211360	. o	-5031866	4 -1		<b>.</b> 6 (
ENISSIONS SAVINGS CASE UNLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING	5063 0	1817 12338 0		4115407 0	31211360	. <del>.</del> .	0 -5031866 0	18 1939351 56 13636275 0 0	20376768 275 8604399 0 0	, c e
		NATI	HATIOHAL FUEL SAVINGS SUHMARY	SAVINGS SI	JHHARY					
		ā	SUMMA TOTAL	TITO CIXXOI - "	6		1			
CATEGORY	HATURAL PETROI FUM GAS DISTILLATE	PETROIFUM DISTILLATE	FETROLEUM EOILER FUEL	GAS CO	COAL DERIVED DISTILLATE	BOILER FUEL	COAL	T OTHER SAVINGS	TOTAL FUEL	
		1								
SITE PLUS UTILITY										
TOTAL ALL	14768	2007	-7504	0 (	0 (	0	22899	2197	\$88£	
FOEL SAVINGS LASES ONLY	1967 1861	14:0	-11531	<b>&gt;</b> c	<b>5</b> C	<b>&gt;</b> C	125/5	261	\$500 # 40 H	
FILESTICAS SAVIAS FASE ONLY	5101	•	6784	<b>.</b>	• •	<b>,</b>	7324	2002		
FUEL & COST SAVINGS CASES	1835	0	-10336	0	•	0	13410	153	5063	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0	0	
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14768	-425	-7504	0	0	0	22899	2197	5884	
FUEL SAVINGS CASES ONLY	5453	-425	-11331	0	0	0	15575	192	5584	
COST SAVINGS CASES CHLY	1835	0	-10335	0	0	0	13410	153	5063	
ELISSIONS SAVINGS CASE ONLY	10345	0	4378	0	0	0	7324	2005	0	
FUEL & COST SAVINGS CASES	1835	0	-10336	0	0	0	13410	153	5063	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0	0	

CIAS GENERAL SUMMARY - FROCE HO.20 ADVANCED TECHNOLGGY,STEAM I FUEL ENERGY	CGY,STEAM I FUEL ENERGY SAUTHER	ESS LEVEL INJECT.G/T Y TOTAL	DIR.FIRED,COAL DER UTILITY COST	COST	R. B.G. SAVINGS	*** STRA CAPITAL	STRATEGY MATCH-T		EMISSIONS SAVINGS	INGS	01 ECS
	RATIO	SAVINGS	SAVINGS	RATIO	\$000	000\$	PATIO	ANT	UTILITY	TOTAL	(元) (元)
HO.01 HEAT PACKINS	0.305	62.3	147.3	-0.062	-24008	728294	0.489	-62173	157529	95356	13.05
HO.02 BAKING	0.216	10.8	25.7	-0.123	-17510	238991	0.489	-10845	57464	16619	0.22*
NO.03 NALT BEVERAGE	0.307	58.6	139.6	-0.133	-36316	429643	065.0	-58322	149236	91668	7.67*
NO.04 WOVEN FAERIC MILL	0.300	32.3	77.8	0.146	57953	417883	0.489	-33182	63274	50092	1.76*
NO.05 SAW MILL	0.000	0.0	91.7	0.000	0	•	0.000	14469	98163	112632	0.00
NO.06 HEWSPRINT MILL	0.283	34.0	63.1	0.198	86324	192789	0.451	-35173	87545	52372	29.60
NO.07 HRITINS PAPER MILL	0.310	61.9	147.6	0.076	37204	429430	0.490	-73216	185592	112376	42.70
NO.08 CORRUGATED PAPER	0.310	355.2	846.2	0.000	702	1824102	0.490	-355898	900250	544352118	18.84
HO.09 BOX BOARD	0.309	97.6	233.7	0.037	21559	523180	065.0	-98265	247823	149538117	17.30
NO.10 CHLORINE	0.297	244.0	652.2	0.149	368539	1476019	0.491	-300986	706702	405716	55.59
HO.11 ALUHINA	0.228	43.6	133.8	-0.068	-29970	291880	0.412	-62279	143242	79608	62.32
HO.12 LOW DENS. POLYETHYL	0.231	40.2	126.8	0.131	83730	329733	0.411	-62775	135649	72874	14.71
NO.13 HI DENS. POLYETHYL	0.311	26.8	63.5	0.185	51874	171519	065.0	-26877	68013	41136	10.37
HO.14 POLYVINYL CHLORIDE	0.312	48.9	115.5	191.0	59438	314959	065.0	-48675	123504	74829	9.86*
NO.15 STYRENE-BUT. RUB.	0.290	13.2	30.8	-0.103	-7432	92229	99.0	-13028	33046	20018	11.04
HO.16 HYLON	0.311	9.7	23.0	0.177	16831	82759	0.491	-9701	24680	14979	4.27*
HO.17 STYRENE	0.000	0.0	7.0	0.000	0	0	0.000	104155	7532	111687	0.00
HO.18 ETHYLENE	0.000	0.0	16.2	000.0	0	0	0.000	780461	16628	797088	00.00
NJ.19 PETROLEUM REFINING	0.000	0.0	293.3	0.000	0	0	000.0	2670494	313958	2964452	00.00
NO.20 TIRES	0.312	63.1	148.8	0.043	17261	456358	0.491	-62499	159275	96776	16.08
NO.23 INTEGRATED STEEL	0.000	0.0	4.784	0.00	0	0	0.000	4342768	521814	4864582	00.0
HO.24 GPAY IRON FOUNDRY	0.182	31.7	93.4	0.056	31346	246891	0.343	-46320	99922	53602	18.43
HO.25 COPPER	0.312	91.3	215.0	0.054	31892	569816	0.490	-90861	230125	139263	12.87
POTCR VEHICLE	0.236	100.4	236.5	0.002	1640	745785	0.491	60266-	253296	153588	22.98
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSICHS SAVINGS CASE ONLY FUEL 1 COST SAVINGS CASES FUELLCOST & ENISSION SAVING	- 10	1431 1431 1637 1637 1635 0	4435 4435 3053 3053 805 805 0		753057 753057 803343 863343 0	9562310 9562310 7701274 0 7781274	i	6361542 -1550301 -1344156 -7912346 -1344156	4773258 4773258 3305647 955095 3305647	11134798 2264357 1961499 8870441 1961429	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY -NATIONAL SUNNARY

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YEAR: 1990 NO.20 ADVANCED TECHNOLOGY,STEAN INJECT.G/T,DIR.FIRED,COAL DER. B.G	INJECT. GZT	DIR.FIREC	,COAL DER.	B.G.	TS ***	*** STRATEGY MATCH-T	TCH-T				07
CATEGORY	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BTU	COST S	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR - T UTILITY T	SAVINGS FEAR IY TOTA	S  TOTAL	
	1 1 1	1 1 1 1	i				1 1 1				
TOTAL AIP	0685	16394		3561094	37488816	•	13105163	63 17919456	•	31024608	
FUEL SAVINGS CASES ONLY	8.50	14578		3561094	37455816	0	-6497155		1	9492948	
COST SAVINGS CASES ONLY	5069	10444		4057301	31337216	. 9	-5526584			8169449	
ENISSIONS SAVINGS CASE ONLY	0	1317		0		0	19592320		N	21531664	
FUEL & COST SAVINGS CASES	5069	12444		4057301	31337216	•	-5526584	84 13696047		8169449	
FUEL, COST & EMISSION SAVING	0	0		•		0		0	0	6	
		HAT	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS SL	JHMARY						
		<u>.</u>	FUEL SAVINGS	10**12 BTU	- BTU -		!				
CATEGORY	NATURAL PI GAS DI	PETFOLEUM DISTILLATE	PETROLEUM BOILER FUEL	GAS D)	COAL DERIVED DISTILLATE	BOILER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL FUEL		
	1		1	;	;	1		i ! !			
SITE PLUS UTILITY											
TOTAL ALL	14768	-425	6082	0	0	-13636	22955	2197	5890		
FUEL SAVINGS CASES ONLY	2423	-425	1704	0	0	-13636	15631	192	5890		
COST SAVINGS CASES ONLY	1635	0	1255	0	0	-11641	13466	153	5069		
EMISSIONS SAVINGS CASE ONLY	12345	0	4378	0	0	0	7324	2002	•		
FUEL & COST SAVINGS CASES	1835	0	1255	•	0	-11641	13466	153	5069		
FUEL, COST & EMISSICH SAVING	0	0	0	0	0	0	0	0	0		
INCLUDING COAL FUEL CONVERSION											
TOTAL ALL	12345	0	4378	0	0	0	8765	2197	1633		
FUEL SAVINGS CASES ONLY	0	0	0	0	0	0	1441	192	1633		
COST SAVINGS CASES ONLY	0	0	0	0	0	0	1251	153	1404		
ENISSIONS SAVINGS CASE ONLY	12345	0	4378	0	0	0	7324	2002	•		
FUFL & COST SAVINGS CASES	0	0	0	0	0	•	1251	153	1404		
FUEL, COST & ENISSION SAVING	0	0	0	0	ی	0	0	0	•		

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HO.21 ADVARGED TECHNOLOGY,STEAN THJECT.G/T FUEL ENERGY TOTAL SAVINGS FUEL RATIO SAVINGS	OSY, STEAN I FUEL ENERGY SAVINGS RATIO	INJECT.6/T Y TOTAL FUEL SAVINGS	DIPECT FIPED, COAL(PFB) UTILITY COST SAVI FUEL DOL SAVINGS RATIO \$0	PED, COAL COST RATIO	SAVINGS DOLLARS \$000	*** STRA CAPITAL COST \$000	*** STRATEGY MATCH-T PITAL EMISSIONS COST SAVINGS -	LANT	EMISSTONS SAVINGS TONS PER YEAR UTILITY TO	111GS  TOTAL	01 ECS SIZE (MM)
HO.O! MEAT PACKING	0.116	24.2	152.6	-0.480	-186614	3006648	0.366	05868-	163199	73359	13.62
MO.OC BAKING	0.073	9.	27.3	-0.407	-58146	761622	0.363	-16230	29169	12940	0.23*
110.03 HALT BEVERAGE	0.000	19.3	161.7	-0.567	-149323	2060353	0.353	-99531	172960	73429	9.05
NO.04 WOVEN FABRIC MILL	0.064	8.3	100.8	-0.199	-79062	1976636	0.340	-64636	107822	43186	2.30#
HO.05 SAW MILL	000.0	0.0	91.7	0.000	0	0	0.000	14469	98163	112632	00.00
NO.06 HEWSPRINT MILL	0.117	14.0	83.1	0.180	78518	735682	0.345	-47439	67547	40108	10.09
RO.07 KRITINS PAPER MILL	0.117	24.0	153.3	0.004	1 900	1668086	0.367	-105976	192838	86862	44.68
NO.08 CORRUGATED PAPER	0.123	142.0	857.7	-0.054	-100604	7347868	0.370	-497045	912486	415441121	21.28
NO 09 BOX BOARD	0.123	39.2	234.8	-0.009	-5165	2045626	0.370	-135381	248972	113591118	18.64
HO.10 CHLORINE	0.134	89.7	431.1	0.187	464968	4025680	0.340	-242218	467122	224904	36.91
KO.11 ALUMINA	0.032	7.9	171.1	-0.259	-114624	1516789	0.290	-114570	183218	68989	90.44
KO.12 LOW DENS. POLYETHYL	6.057	10.0	84.7	0.070	44973	962750	0.216	-52312	90629	38317	9.67*
HO.13 HT DEMS. POLYETHYL	0.055	6.9	83.6	-0.016	-4597	896625	0.340	-53727	89544	35917	13.78
NO.14 FOLYVINYL CHLURIDE	0.065	12.6	153.0	-0.109	-45978	1651829	0.339	-98206	163593	65387	13.17
HO.15 STYREME-BUT, RUB.	0.089	4.5	35.9	-0.332	-27584	414841	0.337	-22137	33478	16341	12.95
HO.16 NYLON	0.084	3.0	27.7	-0.008	-815	362880	0.350	-17263	29708	12445	5.19*
HO.17 STIRENE	0.000	0.0	7.0	0.000	0	0	0.000	104155	7532	111687	0.00
NO.18 ETHYLENE	0.000	0.0	16.2	0.000	0	ပ	0.000	780461	16628	797089	0.00
NO.19 PETROLEUM REFINING	0.000	0.0	293.3	0.000	0	0	0.000	2670494	313958	2984452	0.00
HO.20 TIRES	0.066	16.5	196.6	-0.364	-147634	2423353	0.340	-125926	210405	84479	21.43
NO.23 INTEGRATED STEEL	0.000	0.0	437.4	0.000	0	0	0.000	4342768	521814	4864582	0.00
HO.24 GRAY IRON FOUNDRY	0.057	8.8	54.5	0.207	115555	998899	0.182	-33256	57949	24692	10.76
NO.25 COPPER	0.065	23.7	265.0	-0.275	-161396	3015329	0.339	-183282	304978	121696	17.21
HOTOR VEHICLE	0.061	26.2	312.7	-0.349	-264170	3889368	0.340	-200792	334877	134086	30.64
TOTAL ALL TOTAL ALL TOST SAVINGS CASES ONLY ENTSSIEVE SAVINGS CASE ONLY FUEL \$ COST TAVINGS CASES	<b>&gt;</b> -	1	3000 5000 6000 6000		-635797 -639797 705914 0 705914	907508 907508 907508 907508	ı	5712562 -2199760 -481202 7912346 -481202	1 8 4 6 6 6	10556165 1665724 414833 8876441 414833	
FUEL, CEST & EMISSION SAVING	()	0	0		0	0		0	0	0	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

YEAR : 1990			NATIONA	NATIONAL SUMMARY						
NO.21 ADVANCED TECHNOLOGY, STEAM	IN INJECT.G/T,DIRECT FIRED,COAL(PFB)	DIRECT FI	RED, COAL	PFB 3	*** STRATEGY MATCH-T	TEGY MA	ICH-T			07
CATEGORY	TOTAL FUEL SAVIHGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BTU	COST	SAVINGS DOLLARS \$000	CAPITAL COST \$000		EP PLANT	EMISSIONS SAVINGS TONS PER YEAR LANT UTILITY TO	VINGS AR TOTAL	
TOTAL ALL BIEL SAUTHER CASES ONLY	2026	16955	•	-1394159	154704320		10205296	1 -		
COST SAVINGS CASES ONLY	458	•		2686998	50889104		-3149401	5780630	0 2631228	
EMISSIONS SAVINGS CASE ONLY FIRST & COST SAVINGS CASES	0 %			0 000	0		19592320	_	8	
FUEL, COST & EMISSION SAVING	<b>0</b>	0		0	0 0		0	0 5780630	0 2631228	
		NATI	ONAL FUEL	NATIONAL FUEL SAVINGS SUFHARY	Urthary					
	NATURAL P	PETROLEUM	FUEL SAVINGS PETROLEUM	! !	10**12 BTU COAL DERIVED		•	1	TOTAL	
CATEGORY	GAS D	DISTILLATE	BOILER FUEL	GAS		BOILER FUEL	COAL FUEL	OTHER SAVINGS	FUEL	
		•	!	:		-				
SITE PLUS UTILITY										
FULL ALL	14768	-425	6082	0	0	0	5455	2197	2026	
COST SAVINGS CASES ONLY	6353	535	1071	0 (	<b>.</b>	۰ ،	-1869	192	2026	
EMISSIONS CASES ONLY	100	<b>&gt;</b> •	6,66	<b>3</b> (	<b>.</b>	<b>3</b>	185-	16	834	
FIRE & COST SAVINGS CASE ORLY	61534	- 0	45/S	<b>-</b>	0 0	0 0	7324	2005	0 ;	
FUEL, COST & EMISSION SAVING	0	• •	20	• •			0	<b>~</b> °	* O	
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14763	-425	6082	0	0	0	5455	2197	2926	
FUEL SAVINGS CASES ONLY	2403	-425	1704	0	0	0	-1869	192	2026	
COST SAVINGS CASES ONLY	637	0	593	0	•	0	-487	16	834	
EMISSIOMS SAVINGS CASE DULY	12345	0	4379	0	0	0	7324	2005	0	
FUEL & COST SAVINGS CASES	637	0	593	0	0	0	-487	16	834	
FUEL, COST & ENISSION SAVING	0	0	0	0	0	0	0	0	0	

01 ECS SIZE (PM)	7.92*	0.03*	0.12*	0.07*	00.00	13.08	6.63*	38.24	11.36	1.65*	0.93*	0.67*	0.34*	0.24*	0.13*	0.15*	*0£.9	0.00	00.0	0.23#	00.0	6.88*	10.19	0.35*	
NGS  TGTAL	37624	169	-418	-65	112632	3689	5751	38225	589421	25619	-6228	•	-173	-372	-157	6-	-758	797088	2984452	- 366	4864582	11924	-1177	906-	
EHISSIONS SAVINGS TONS PER YEAR UTILITY TG	91320	3874	2309	3153	98163	18395	27678	184871	224154	20441	2493	5936	2178	3004	397	845	15073	16628	313958	2351	521314	35490	3391	3915	1601928 147647 331919 971004 56328 20441
LANT	-53696	-3183	-2727	-3218	14469	-14507	-21927	-146645	-165212	5177	-8721	-5930	-2351	-3376	-554	-854	-15831	780461	5670494	-2717	4342768	-23566	-4568	-4820	7328963 -72639 -257135 7613358 -18943
*** STRATEGY MATCH-T PITAL EHISSIONS COST SAVINGS - \$000 RATIO P	0.292	0.030	-0.008	-0.001	0.000	0.033	650.0	0.089	0.209	0.039	-0.071	0.000	-0.002	-0.003	-0.011	0.000	-0.006	000.0	0.000	-0.004	000.0	0.088	-0.008	-0.006	i
*** STRA' CAPITAL ( COST (	1940518	157267	563225	220265	•	241479	462085	2085155	1919119	651920	124802	199599	120644	207137	50462	50186	364464	0	0	256211	O	100965	332482	382701	10525715 3133930 6508313 651920 1193362 651920
OAL(AFB) SAVINGS DOLLARS \$000	66665-	-11457	50670	19902	0	35042	74813	405917	-65353	282500	34190	21773	23719	44374	12272	8319	152212	0	0	59703	o	108465	85861	65310	1359493 1359493 1456300 282500 403237 282500
r FIRED,C CGST RATIO	-0.128	-0.080	0.192	0.052	000.0	0.080	0.153	0.216	-0.114	0.114	0.077	0.034	990.0	0.105	0.170	0.078	0.254	0.000	0.000	0.147	000.0	0.195	0.146	0.037	
G/T,INDIRECT FIRED.COAL(AFB) UTILITY CGST SAVIHSS FUEL DOLLARS SAVIHGS RATIO \$000	85.4	3.6	2.2	6.5	91.7	17.5	22.0	173.8	211.4	18.9	2.3	5.5	2.0	2.8	4.0	0.8	14.1	16.2	293.3	2.2	487.4	33.2	3.2	3.7	i ¢ m o o o n ⊶
	17.2	4.0-	-0.3	-0.7	0.0	-1.5	-1.7	-14.6	-6.0	32.0	-8.3	-1.7	-0.5	9.0-	0.1	-0.2	-3.5	0.0	0.0	-0.2	0.0	5.1	4.01	4.0-	8.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00
ARY - PROCE OGY,STEAN I FUEL ENERGY SAVINGS RATIO	0.121	-0.010	-0.005	-0.007	0.000	-0.012	-0.015	-0.029	-0.020	0.048	-0.074	-0.009	-0.006	-0.005	0.005	-0.007	-0.018	0.000	0.000	-0.005	0.000	0.033	-0.005	-0.005	
CTAS GENERAL SURBRARY - PROCESS LEVEL HO.22 ADVANCED TECHNOLOGY,STEAN INJECTED FUEL ENERGY TOTAL SAVINGS FUEL RATIO SAVINGS	NO.01 MEAT PACKING	HO. 02 BAKING	HO.03 MALT BEVERAGE	NO.04 HOVEN FARRIC MILL	NO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 WRITING PAPER MILL	NO.03 COFRUGATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	NO.11 ALUNINA	NO.12 LOW DENS. POLYETHYL	NO.13 HI DENS, POLYETHYL	HO.14 POLYVINIL CHLORIDE	MO.15 STYREME-BUT. RUB.	но.16 итси	NO.17 STYRENE	NO.18 ETHYLENE	NO.19 PETPOLEUM REFINING	HO.20 TIPES	NO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 CCPPER	P VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CHLY ENISSIONS SAVINGS CASE ONLY FUEL 2 COST SAVINGS CASES FUEL, COST SAVINGS CASES

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURMARY

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07																								
	rigs  TOTAL	1	21755232	151841	21195040	79724	57636			<u>ت</u> د ب	!	1	-135	-141	72	82	72		-133	115	-141	72	82	72
	EMISSIONS SAVINGS TONS PER YEAR LANT UTILITY T	;	4734351	199093	1958750	115950	45988		I	TOTAL DTHER FUEL SAVINGS		,	7612 7612			90	•					1974	90	0
<b>-</b> -	EMISS TONS PLANT		17020864	-139152	19236288	-36227	11648			COAL OTH	-		2/49	-4135		-271	-80			-317			-271	-80
*** STRATEGY MATCH-T		i							1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LER El	-		<b>-</b>			0	٥		0	٥	0	0	0	٥
*** STRA	CAPITAL COST \$000	; ; ;	41757728	6393137	1466675	2063534	1466675	HIARY	10**12 BTU	COAL DERIVED DISTILLATE BOI FU	1	!	9 6	• •	0	0	0		٥	0	0	0	0	0
SUGARY L(AFB)	SAVIKGS C DOLLAFS \$000	, , , , , ,	5741415	807487	635562	903326	635562	NATIONAL FUEL SAVINGS SUMNARY	1++01	GAS DIS		,	5 6	• 0	0	0	0		0	0	0	0	0	0
FIRED, COAL(AFB)	COST \$	;						HAL FUEL S	FUEL SAVINGS	PETROLEUN EOTLER FUEL			200	1721	4275	55	47		6082	20	1721	4275	52	47
T, IRIDIRECT	UTILITY FUEL SAVINOS 10*412 BTU	; ; ;	4387	272	1934	109	4.2	NATIO		PETROLEUM P DISTILLATE	1		14.55	507-	0	-17	a		-455	-17	-425	0	-17	0
EAM INJECTED G/T,INDIRECT FIRED,COAL(AFB	TOTAL UTILITY FUEL TUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	; ; ; ; ;	-133	115	27.5	9 00	72			NATURAL PE GAS DI	! ! ! ! !	;	\$60\$T	1652	15047	225	104		14654	286	1652	12047	502	104
YEAR : 1990 HOLEZ ADVANCED TECHNOLOGY,STEAN	CATEGORY		TOTAL ALL	FUEL SAVINGS CASES ONLY	ENTSSICAS SAVIESS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING			CATEGORY		SITE PLUS UTILITY	FULL ALL	COST SAVINSS CASES ONLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING	INCLUDING COAL FUEL CCHVERSION	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES DRLY	ENISSIONS SAVINSS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

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HO.OI REAT PACKING         0.345           HO.O2 BAKING         0.267           HO.O3 HALT BEVERAGE         0.347           HO.O3 HALT BEVERAGE         0.342           HO.O5 AH HILL         0.342           HO.O5 SAH HILL         0.350           HO.O5 ARITING PAPER HILL         0.350           HO.O3 CORRUGATED PAPER         0.350           HO.O9 CORRUGATED PAPER         0.350           HO.O9 CORRUGATED PAPER         0.350           HO.O9 CORRUGATED PAPER         0.350           HO.O9 CORRUGATED PAPER         0.350           HO.O9 CORRUGATED PAPER         0.350           HO.O9 CORRUGATED PAPER         0.350           HO.O9 CORRUGATED PAPER         0.350           HO.O9 CORRUGATED PAPER         0.350           HO.O1 CHICRING         0.350           HO.O1 ALUTINA         0.350           HO.O1 ALUTINA         0.350           HO.O1 POLYVINYL CHIORIDE         0.350           HO.O1 POLYVINYL CHIORIDE         0.350           HO.O1 POLYVINYL CHIORIDE         0.350           HO.O1 STYREHE         0.000           HO.O00         0.000           HO.O1 STYREHE         0.000           HO.O1 STYREHE         0.000	64.9 40.1 79.8 44.0 0.0 46.2 64.4 454.1	169.3		\$000	\$000	RATIO	PLANT UTILITY	UTILITY	TOTAL (PEU)
IILL MILL THYL RIDE UB.	40.1 79.8 44.0 0.0 46.2 64.4 464.1		-0.218	-84815	1470868	0.563	+1269-	202446	132732 16.85
HALT BEVERAGE HOVEN FAERIC HILL SAM HILL HEHSFRINT HILL HRITING PAPER MILL CORRUGATED PAPER EOX BOARD CHLCRINE ALUMTHA LOW DEMS. POLYETHYL HI DEMS. POLYETHYL HI DEMS. POLYETHYL STYRENE-BUT. RUB. NYLCH STYRENE ETHYLENE	79.8 44.0 0.0 46.2 64.4 454.1		-1.332	-197365	1579563	0.572	-49508	123391	73883 0.99#
HOVEN FAGRIC HILL SAH HILL HENSFRIHT HILL CORRUGATED PAPER GOX BOARD CHLCRINE ALUTHA LOM DENS. POLYETHYL HI DENS. POLYETHYL POLYVINYL CHLORIDE STYRENE-BUT. RUB. NYLON STYRENE ETHYLENE	64.0 64.4 64.4 133.2	177.7	-0.242	-63683	636839	0.563	-65232	190103	124870 9.88*
MELLING PAPER MILL WRITING PAPER MILL CORRUGATED PAPER EOX BOARD CHLCRINE ALUMTNA LOM DENS. POLYETHYL HI DENS. POLYETHYL HI DENS. POLYETHYL STYRENE-BUT. RUB. NYLON STYRENE ETHYLENE	0.0 46.2 84.4 464.1	99.0	0.025	9395	977814	0.563	-36603	105948	69344 2.25#
HEHSFRINT HILL WRITING PAPER HILL CORRUGATED PAPER EOX BOARD CHLCRINE ALUTINA LOM DEMS. POLYETHYL HI DEMS. POLYETHYL POLYVINYL CHLORIDE STYRENE-BUT. RUB. NYLCN STYRENE ETHYLENE	46.2 84.4 454.1 133.2	91.7	0.000	•	•	0.000	12986	98163	111149 0.00
WRITING PAPER MILL CORRUGATED PAPER GOX BOARD CHLCRINE ALUMINA LOM DENS. POLYETHYL HI DENS. POLYETHYL POLYVINYL CHLORIDE STYRENE-BUT. RUB. NYLON STYRENE	84.4 454.1 133.2	103.9	0.221	96196	320844	0.563	-37745	109416	71670 74.90
CORRUGATED PAPER  EOX BOARD  CHLCRINE  ALUMTHA  LOW DENS. POLYETHYL  HI DENS. POLYETHYL  POLYVINYL CHLORIDE  STYRENE-BUT. RUB.  NYLON  STYRENE  ETHYLENE	133.2	189.1	950.0	22517	744629	0.563	-61791	237823	156031 55.02
COX BOARD CHLCRINE ALUNINA LOM DENS. POLYETHYL HI DENS. POLYETHYL POLYVINYL CHLORIDE STYRENE-BUT. RUB. NYLON STYRENE		1083.6	-0.020	-38204	3042255	0.563	-396991	1152785	755795114.76
CHLCRINE ALUMINA LOM DENS. POLYETHYL HI DENS. POLYETHYL POLYVINYL CHLORIDE STYRENE-BUT. RUB. NYLON STYRENE		299.4	0.017	9814	866958	0.563	-109658	317523	207865100.75
ALUMINA LOW DEMS. POLYETHYL HI DEMS. POLYETHYL POLYVINYL CHLORIDE STYRENE-BUT. RUB. NYLON STYRENE	252.6	482.1	992.0	660652	1654927	0.563	-156779	522389	365610 41.18
. SE	103.8	281.9	-0.284	-125662	774850	0.522	-117929	301609	163879132.71
HI DENS. POLYETHYL POLYVINYL CHLORIDE STYRENE-BUT. RUB. NYLON STYRENE ETHYLENE	60.3	152.0	0.184	117604	635473	0.570	-60743	162649	101906 17.75
POLYVINYL CHLORIDE STYRENE-BUT, RUB. NYLON STYRENE ETHYLENE	36.4	81.2	0.142	39764	355614	0.563	-29922	86977	57054 13.34
STYRENE-BUT. RUB. NYLON STYRENE ETHYLENE	66.5	148.1	0.036	36538	653597	0.563	-54453	153398	103945 12.71
	0.0	4.2	000.0	•	0	0.000	9526	4463	13722 0.00
	13.2	29.3	0.108	11476	179694	9.564	-10769	31477	20709 5.48#
	0.0	7.0	0.000	0	0	0.000	93480	7532	101012 0.00
	0.0	16.2	0.000	•	0	0.000	700469	16628	717096 0.00
NO.19 PETPOLEUM PEFININS 0.000	0.0	293.3	000.0	•	•	0.000	2396786	313959	2710745 0.00
NO.20 TIRES 0.351	85.8	9.061	-0.029	-11824	691551	0.564	-69828	203978	134150 20.70
HO.23 INTEGRATED STEEL 0.000	0.0	487.4	0.000	0	0	0.000	4342768	521814	4964592 0.00
NO.24 GPAY IRON FOUNDRY 0.308	70.8	149.6	060.0	50147	550954	905.0	-53531	159959	106428 29.68
KO.25 COFPEP 0.351	124.2	276.1	-0.011	-6471	1155484	0.563	-101752	295424	193673 16.62
VEHICLE	136.3	302.6	-0.048	-36135	1357910	9.564	-111133	324003	212870 29.55
TOTAL - ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CHLY EMISSICHS SAVINGS CASE CHLY FUEL L COST SAVINGS CASES FUEL LCST SAVINGS CASES	800 800 800	5251 4351 1734 900 1734	•	1054597 1054597 1054597 1054597	18050016 18050016 6940701 0 6940701	i	5941665 -1614080 -631995 7555740 -631995	0 4686493 4686493 1892559 1892559 1892559	11590714 3072410 3072410 1260561 1260561 0

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0.0																									
	INGS		33931376	02718481	20443656	6761470	•			TAL FUEL	:		8273	5273	4125	0 !	4125	0	;	82/3	8273	4125	0	4125	•
	EMISSIONS SAVINGS - TONS PER YEAR NT UTILITY TO			1025200	•	_	0			TOTAL OTHER FUE SAVINGS			2197	180	128	2017	921	6		/612	180	128	2017	128	0
TCH-T	EH)		11207594	1864/2/-	18462576	-3503728			į	COAL	; ; ; ; ;		27353	20003	9318	7350	9818	6	į	2/353	20003	9318	7350	9818	0
*** STRATEGY MATCH-T		;	016	919	0	456	0			D E BOILER FUEL			0	0	0	0 1	0	0	•	•	•	•	0	0	•
* *	CAPITAL COST \$000		69574016	3574616		34733456		UPIHARY	10**12 BTU	COAL DERIVED DISTILLATE			0	0	0	0	0	0	•	0	0	•	0	0	0
و.	COST SAVINGS DOLLARS \$000		2173990	2173990	0	4404732	0	NATIONAL FUEL SAVINGS SUMMARY	į	GAS D			0	0	0	0	0	0	•	0	•	0	0	0	0
TROLEUM B.		i						IOHAL FUEL	FUEL SAVINGS	PETROLEUN BOILER FUEL			7676	-13376	-6606	4387	-6306	0	•	7676-	-13676	-6806	4332	-6806	0
FIRED, PI	UTILITY FUEL SAVINGS 10**12 B	1	20793	18556	1837	9122	0	NAT	;	PETEOLEUM DISTILLATE	!		-408	007-	0	0	0	0		-403	-403	0	•	0	0
CYCLE, DIRECT FIRED, PETROLEUM B.G	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 6TU 10**12 BTU	1 1 1 1 1 1	8273	8273	0	4125	0			NATURAL PE GAS DI			14760	53.74	500	12374	<b>5</b> 36	0		14763	2374	<b>5</b> 06	123.4	965	0
YEAR : 1990 NO.23 ADVANCED TECHNOLOGY,COMB	CATEGORY		TOTAL ALL	FUEL SAVINGS CASES ORLY	EMISSICHS SAVINGS CASE CHLY	FUTL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING			CATEGORY		SITE PLUS UTILITY	TOTAL ALL	FUEL SAVINGS CASES CHLY	COST SAVINSS CASES ONLY	ENISSICHS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	DISCLUDING COAL FUEL CONVERSION	1614L ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES CHLY	EMISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSICH SAVING

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CIAS GENERAL SUBBARY - FROCE NO.24 ADVANCED TECHNOLOSI,CCHB.C. FUEL ENEMOR INDUSTRY SALTES RATIO
0.345 24.9 189.
0.287 40.1 115.3
0.347 79.8 177.7
.342 44.0 99.0
0.000 0.0 91.7
0.349 46.2 103.
.350 84.4 189.
0.350 454.1 1083.6
0.349 133.2 299.4
0.378 252.6 482.1
0.287 103.8 281.9
0.339 60.3 152.0
0.351 36.4 81.2
0.351 66.5 148.1
0.000 0.00 4.2
0.351 13.2 29.3
0.000 0.0 7.0
0.000 0.0 16.2
0.000 0.0 293.3
0.351 85.8 190.6
0.000 030.0
0.306 73.8 160.8
0.351 164.2 276.1
0.327 136.3 302.6
1950 5262 1950 4365 811 1745 0 900 811 1745

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YEAR : 1990	CITAL MOD GREET ADRIED STONE				1						Ş
CATEGODY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 DTU	UTILITY FUEL SAVINGS 10**12 DI	<b>u</b>	SAVINGS DOLLARS \$000	CAPITAL COST \$000		i N	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	9	S  TOTAL	3
TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES CHLY EHISSICHS SAVINGS CASE ONLY FUEL L COST SAVINGS CASES FUEL L COST SAVINGS FUEL, COLT L EHISSICH SAVING	0179 6179 4130 4130 6130	20015 18973 9144 1837 9144	;	2151912 2151912 4362654 0	69639152 69639152 34793592 34793592	552 90 90 90 90	11679576 -7561790 -3637864 19641360 -3637864	6 22746864 10 20785760 10 10286249 10 1961118 10 10286249	1	34426400 12823960 6450377 21602480 6450377	
CATEGORY	PAL S	HATI FU PETROLEUM DISTILLATE	HATIONAL FUEL SAVINGS SUMMARY FUEL SAVINGS 10**12 BT UM PETROLEUM COAL DERI ATE FOILER GAS DISTILL FUEL	SAVINGS SI 10* COA GAS D	WINGS SUPPLARY 10*#12 BTU COAL DERIVED AS DISTILLATE	EOILER FUEL		OTHER	OTA FU		
SITE PLUS UTILITY TOTAL ALL	14763	1	6082	: ©	• • • • • • • • • • • • • • • • • • •	- 15592	27375	2197	8279		
FUEL SAVINGS CASES ONLY	5374	-463	1700	0	0	-15592	2002	180	8279		
COST ENVIRES CASES CALT	4) b 64	9 6	16/	<b>o</b> c	0 6	- 7013	7450	2017	05 I \$		
FUEL & COST SAVINGS CASES	1505 1505		791	0	00	-7613	9939	128	4130		
FUEL, COST & EMISSION SAVING	0	0	•	0	0	0	0	9	•		
INCLUDING COAL FUEL CONVERSION		,	•	,	•	•					
TOTAL ALL	12394	0	4382	0	0	0	10339	2197	3168		
FUEL SAVINGS CASES CHLY	0	0	0	0	•	0	2098	160	3168		
COST SAVINGS CASES ONLY	•	0	0	0	0	0	1501	128	1629		
ENISSICHS SAVINGS CASE CRUY	12394	0	4392	0	0	0	7350	2017	•		
FULL S COST SAVINGS CASES	0	0	0	a	0	٥	1501	128	1629		
FUIL, COST & EMISSION SAVING	0	0	0	0	٥	0	0	•	•		

VINGS ECS R SIZE TOTAL (ML)	62065 12.21	14293 0.20*	01347 7.85*	48146 2.01#	112632 9.00	45171 54.22	95755 38.97	463106108.55	126598106.18	246315 32.18	77348 78.57	45002 9.52#	40139 12.12	72928 11.49	16125 11.31	13924 4.59#	111667 0.00	797068 0.00	2934452 0.00	94533 18.81	4864582 0.00	26748 8.12*	136008 15.06	150044 26.89	1074e050 1677e09 11756e4 6870441
EMISSIOMS SAVINGS TOMS PER YEAR UTILITY TO	145702	25359	150003	93652	93163	78796	167617	013500	221977	402696	160139	87019	78440	142140	33473	26181	7532	16628	313958	183991	521814	43502	265804	•	4373773 3415580 2064976 558095
LANT	-63614	-11066	-68656	-45506	14469	-33628	-71851	-350402	-95379	-159361	-62791	-42018	-36301	-69212	-15348	-12257	104155	780461	2670494	-89458	4342768	-16754	-129796	-142641	6374277 -1538064 -259192 7912346
SAVINGS -	655.0	655.0	0.439	925.0	0.000	0.389	0.453	0.452	0.453	0.373	0.363	0.254	0.425	924.0	0.416	0.435	000.0	0.000	0.000	9:456	0.000	6.197	0.425	924.0	;
CAPITAL COST \$000	3016323	971707	2072352	2104277	0	705152	1548819	6722459	1873252	3760423	1387563	1033241	663912	1617407	405601	379329	0	0	9	2344215	o	616084	1686552		(ധയല് ല
SAVINGS DOLLARS \$600	-125042	19629-	-81168	-50094	0	102372	87978	299502	104168	587318	-31608	63073	30772	20393	-12173	6605	•	0	0	-58332	•	133230	-37623	131411-	THE PARTY OF THE P
COST PA110	-0.321	-0.476	-0.308	-0.126	000.0	0.235	0.180	0.160	0.181	0.237	-0.071	660.0	0.110	0.048	-0.168	0.083	000.0	0.000	0.000	-0.144	0.000	0.239	-0.064	-0.151	•
UTILITY COST SAV. FUEL BOTTO SATINGS PATIO	155.2	23.7	140.2	87.5	01.7	74.8	133.3	764.7	209.3	374.4	149.6	81.3	73.2	132.9	31.2	24.4	7.0	16.2	293.3	171.9	457.4	40.7	248.4	273.3	00000
TOTAL FUEL WINGS	45.3	7.8	41.9	7.22	0	25.8	45.4	259.5	71.3	149.0	31.7	21.3	18.6	34.0	9.5	6.9	0.0	0.0	0.0	43.9	0.0	18.9	62.5	69.7	987 987 651
, >	0.235	0.164	0.218	0.170	0.000	0.215	0.245	9.2.0	0.244	922.0	0.139	0.122	0.1%	0.195	0.207	0.211	0.00.0	0.00.0	0.000	0.155	0.000	0.122	0.195	0.160	
FUEL ENERGY THOUSTRY SAVINGS RATIO	KO.OI PEAT PACKING	HO.C2 BAFINS	NO.63 MALT BEVERAGE	NO.04 WOVEN FREDIC MILL	NO.05 SAM MILL	NO.D6 REWSPOINT HILL	HO.O7 KUITING PAPER HILL	NO.08 COMPUGATED PAPER	HO. 09 EOF EOAPD	NO.10 CHLORINE	HO.11 ALUMINA	KOLIZ LOW DENS, POLYETHIL	1.3.13 HI BEHS. POLYETHYL	MO.14 FOLYTHAL CHLO91DE	NO.15 STIPENE-EUT. RUB.	HO.16 HYLON	HO.17 STIPERE	NO.18 ETHYLENE	NO.19 PETPCLEUM REFINING	HO.CO TIPES	NO.23 INTEGRATED STEEL	NO.24 CHAY IPON FOUNDRY	HO.25 COPFEP	HOLZS MOTOS VEHTOLE	S CHLY S CHLY CASE

- COSENLFATION TECHTOLOGY ALTERNATIVES STUDY - NATIONAL SUBMIRE

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	558			29563168	8031502	5936729	21531664	5936729	•
	EMISSIONS SAVINGS					10456762	1939349	10496762	0
HATCH-T	EMIS:			13003747	-6583571	-4560028	19592300	-4560028	•
*** SIRATEGY MATCH-T	CAPITAL	000		147240256	147240256	9,942848	0	56942843	0
COALUPFB)	COST SAVINGS BOLLARS		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5211957	5211957	6049298	0	6649293	0
CYCLE, DIPECT FIRED, COALUPFB)	UTILITY	54VINOS 10-*12 BTU	; ; ; ;	15163	13347	55+7	1317	5645	0
HED CYCLE,D	TOTAL UTILITY FUEL FUEL	1012 BTU	1	4129	6215	3173	0	31.70	0
HIST : 1940 HOLDS ADVANCED TECHNOLOGY, COMBINED	CATEGERY			TOTAL ALL	FUEL SWINGS CASES ONLY	COST SAVINGS CASES CYLY	ENISSIONS SAVINGS CASE CHLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

TOTAL	FUEL	
	OTHER	SAVINGS
	COAL	FUEL
COAL DERIVED	DISTILLATE BOTLER	FUEL
1	643	
PETROLEUM	EOILER	FUEL
HATUPAL FETROLEUM	GAS DISTILLATE	
	11.600 /	
	¥ :	T LER COAL OTHER

HATIOHAL FUEL SAVINGS SUMMARY

	GAS DISTILLATE	TILLATE	COILER FUEL	645	DISTILLATE B	BOILER FUEL	COAL	OTHER SAVINGS	FUEL
			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1	1			
	14768	-425	6032	0	•	•	7558	2197	4129
11.7	5423	527	1704	0	.,	0	234	192	4129
CCST SK121/08 C105S CHET	1553	0	1170	c	0	0	324	124	3170
SE CHLI	10345	0	4378	0	0	•	7324	2005	•
FULL & COST SAULINGS CASES	1553	0	1170	0	0	0	324	124	3170
FUEL, COST & EMISSION SAVINS	0	0	•	0	•	0	•	•	•
INCLUSING COAL FUEL CONVERSION									
	14769	575-	£032	0	rs	0	7555	2197	4129
ATHE CHASE CASES OF ALL	2413	-425	1704	0	0	•	234	192	4129
1087 5471433 C 35.7 CHU	1553	0	1170	0	۰	•	324	124	3170
5.5 O'11.Y	123-5	0	4378	0	0	•	7324	2005	0
TUEL 4 COST SAVINGS CASES	1553	0	1170	•	•	0	936	124	3170
<b>ピクポンポル かくしがっしかい キーレンしじ こうこう</b>	C	•	0	a	0	a	•	0	0

CTAS GENERAL SUNDARY - PROCESS NO.26 ADVANCED TECHNOLOSY, CONSINGED FUSION FUSION	MARY - PROCES OSY, CONDINED FIRE PERSON	COMBINED CYCLE, IN	CTCLE, INDIRECT FIRED, COAL(AFB)	RED, COAL	(AFB)	*** STRA	STRATEGY MATCH-T			9	01
1900STRY	SAVINOS RATIO		FUEL	RATIO	SAVINGS DOLLARS \$000	COST \$000	EMISSIONS SAVINGS RATIO	EMI TON: PLANT	EMISSICHS SAVINGS TONS PER YEAR UTILITY TO	INGS TOTAL	SIZE (TEM)
HO.01 MEAT PACKING	0.207	27.1	74.0	-0.106	-41356	2153892	0.355	-37761	79107	95215	6.87*
HO.02 BAKING	0.036	3.8	15.1	-0.310	-44283	691615	0.314	-8673	16176	7303	0.14*
NJ.03 MALT BEVERAGE	0.127	18.0	89.8	-0.239	-65669	1660880	0.305	-56057	96058	40 201	5.22*
HO.04 WOVEN FABRIC MILL	0.092	6.6	49.6	-0.096	-37890	1510871	0.216	-30988	F3089	10122	1.18*
HO.05 SAW MILL	0.000	0.0	91.7	0.000	0	0	0.000	1446	98163	112632	0.00
NO.06 NEWSPRINT MILL	0.113	13.5	44.7	0.158	69058	505092	0.197	-24199	47068	22869	33.50
RO.07 KRITING PAPER MILL	0.167	23.0	85.5	0.193	94346	1226041	0.330	-57684	107567	49882	25.89
HO.03 CORRUGATED PAPER	0.181	139.2	470.1	0.208	389879	4829370	0.338	-260041	500084	240043103	03.56
HO.09 EOX BOARD	161.0	39.7	125.2	0.230	132271	1364735	0.344	-67191	132786	65595	65.68
NO.10 CHLORINE	0.129	96.4	238.7	0.161	399099	3002628	0.203	-124241	258658	134417	21.25
NO.11 ALUMINA	0.058	4.7	87.0	-0.004	-1830	951665	0.226	-60152	93160	33008	45.44
HO.12 LOW DENS. POLYETHYL	0.053	9.3	47.2	0.043	30539	783144	0.118	-29659	20510	20851	5.72*
MO.13 HI DENS. POLYETHYL	560.0	7.3	43.9	0.102	28581	675923	0.251	-28640	44069	18430	7.53*
NO.14 FOLYVINYL CHLORIDE	0.130	15.1	75.2	0.125	52728	1193425	0.305	-47001	60387	33386	6.73*
MO.15 STYRENE-BUT. RUB.	0.121	4.5	20.0	-0.132	-9541	330232	0.283	-12515	21443	8925	7.51*
но.16 муцен	0.102	3.0	15.0	0.056	6665	290276	0.239	-9431	16133	6702	2.93*
NO.17 STYREME	0.000	0.0	7.0	0.000	0	0	0.00.0	104155	7532	111687	0.00
NO.18 ETHYLENE	0.000	0.0	16.2	0.000	•	0	0.000	780461	16628	797038	00.00
NO.19 PETROLEUM REFINING	000.0	0.0	293.3	0.000	•	٥	0.00.0	5670494	313958	2984452	0.00
HO.20 TIRES	0.131	19.7	9.96	0.014	2695	1593656	0.307	-60032	103408	43326	10.94
NO.23 INTEGRATED STEEL	0.000	0.0	487.4	0.00.0	o	٥	0.000	4342768	521814	4864582	0.00
NO.24 GPAY IFON FOUNDRY	0.073	11.3	25.5	0.206	114929	498733	0.104	-13139	27240	14101	5.29#
NO.25 COPPER	0.137	23.6	139.5	0.055	32064	2080727	0.305	-87287	162651	90079	8.76*
MO.25 MUTOR VEHICLE	0.118	31.6	153.0	-0.034	-25532	2649088	0.307	<b>P</b>	163959	68551	15.58
TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES ONLY EFICSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUELLCOST & FULSSICH SAVING		500 500 396 396 396	2791 1850 1407 856 1407			27995952 27995952 18048752 16049752		6802096 -1110249 -808595 7912346 -808595	3001180 3001180 1520199 958095 1520199	9803280 932842 711607 8670441 711607	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUMMARY

20					
	VINGS AR TOTAL	0 2552928 4 3991261 7 3562047 9 21531664 7 3262047	TOTAL FUEL	2052 2052 1758 0 1758	2052 2052 1759 0 1758
	EMISSICHS SAVINGS TONS PER YEAR ANT UTILITY TO	1077358 693423 693180 193934 698180	TOT OTHER I SAVINGS	2197 192 126 2005 126	2197 192 126 2005 126
TCH-T	EF T PLANT	14749365 -4842953 -3719745 19592320 -3719745	COAL	5481 -1843 -1337 7324 -1337	5481 -1843 -1337 7324 -1337
*** STRATEGY MATCH-T		928 928 176 176	D E BOILER FUEL	•••••	00000
* * H	CAPT. L COST \$000	106636928 105636928 105636176 0 80556176	S SUMMARY 10**12 BTU - COAL DERIVED DISTILLATE	•••••	00000
HATIOHAL SUHHARY D, COAL(AFB)	SAVINGS DOLLARS \$000	5557268 5857268 6329710 6329710	SAVINGS 10 CO GAS	00000	000 <b>0</b> 0
HATIOHAI RED, COALO	COST	1	TIONAL FUEL S FUEL SAVINGS PETROLEUM E BOILER FUEL	6082 1704 1211 4378 1211	6082 1704 1211 4378 1211
IDIRECT FI	UTILITY FUEL SAVINGS 10**12 GTU	9368 8052 6321 1817 6321	NATI PETROLEUM DISTILLATE	-425 -425 0 0	44. 60.00
EINED CYCLE, IP	TOTAL FUEL SAVINGS 10**12 BTU	2052 2052 2053 1758 1759	NATURAL PI GAS D	14768 2423 1758 12345 1758	14768 2423 1758 12345 1758
YEAR : 1990 HD.20 ADVANCED TECHNOLOGY,CONDINED CYCLE,INDIRECT FIRED,COAL(AFB)	CATEGORY	TOTAL ALL FUEL SAVINGS CASES OHLY COST SAVINGS CASES OHLY ENISSICHS SAVINGS CASE OHLY FUEL & COST SAVINGS CASES FUEL, COST \$ EMISSION SAVING	CATEGORY	SITE PLUS UTILITY TOTAL ALL FUEL SAVINGS CASES OHLY COST SAVINGS CASES OHLY ENISSIONS SAVINGS CASE CNLY FUEL 1 COST SAVINGS CASES FUEL, COST SAVINGS	INCLUDING COAL FUEL CCNVEPSION TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING

O1 ECS SIZE (MM)	7.24	0.52	0.00	1.11	00.0	86.20	75.95	00.0	92.48	46.85	42.14	7.78	6.30	5.74	0.00	3.65	00.0	0.00	85.00	8.92	00.0	2.67	7.16	2.75	
14L	240413 1	70789	51939	24547	111149	202644 8	525466 7	407564	728787 9	652002 4	96134 4	75426	43128	75274	13722	23267	101012	717096	1555140 8	92933	4864582	14770	134089	147550 1	10999417 4732355 4732365 10903283
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	208265	62339	20256	52096	98163	189265	493312	218524	681463	595314	96614	71669	41146	71636	4463	22168	7532	16628	1476619	88040	521814	14346	127519	140043	5322261 4434835 4434835 5225648
LAHT	32149	5410	31683	2451	12986	13379	32154	189040	47324	56689	644-	3757	1982	3638	9258	1099	93480	700459	78521	4892	4342768	425	1299	'n	5677149 297467 5677628
STRATEGY MATCH-T NL EHISSIONS F SAVINGS -	966.0	966.0	0.000	0.542	0.000	0.978	0.987	0.000	966.0	0.927	0.654	0.430	0.600	0.718	000.0	0.849	0.550	000.0	0.401	0.762	0.000	91110	0.762	0.762	i
*** STRA CAPITAL COST \$000	1645691	394166	0	330879	0	764823	2002523	0	2709206	2523928	434156	333946	206397	363228	0	108154	0	•	7379591	519633	0	82041	640472	877134	21320896 21320895 21320895 0 20886768
LLATE SAVINGS DOLLARS \$000	-269936	-112242	0	-36899	0	-196217	+24022-	0	-1077269	-218365	-160417	-37263	-22660	-38447	0	-12144	0	0	-2361478	-89351	0	-10550	-120476	-171241	-5705922 -5705922 0 -5545506
EUM DISTILLATE COST SAVIN DOLL RATIO \$00	-0.694	-0.786	000.0	-0.093	0.000	-0.450	-1.574	000.0	-1.873	-0.033	-0.362	-0.058	-0.031	-0.091	000.0	-0.114	000.0	0.000	-0.160	-0.221	0.000	-0.019	-0.205	-0.226	1
P., PETROLEUM UTILITY ( FUEL SAVINGS RA	194.7	61.1	18.9	48.7	91.7	179.7	392.2	205.4	642.6	549.4	90.2	0.79	33.4	67.0	4.13	20.7	7.0	16.2	1379.5	82.3	487.4	13.4	119.2	130.8	4903 4077 4077 6 6 0
SS LEVEL LL,LON TEN TOTAL FUEL SAVINSS	78.8	17.2	0.0	11.3	0.0	47.0	98.6	0.0	166.4	168.9	13.6	15.9	9.1	16.2	0.0	4.8	0.0	0.0	0.604	20.4	0.0	5.1	29.5	32.4	1144 1144 1146 1130 0
ARY - PROCE OGY, FUEL CE FUEL ENEPGY SAVINGS RATIO	0.313	0.201	0.000	0.105	0.000	0.225	0.222	0.000	0.229	0.235	0.081	0.091	0.119	0.141	000.0	0.165	0.000	0.00.0	0.079	0.150	0.000	0.033	0.150	0.132	
CTAS GENERAL SUBBARY - PROCE NO.27 ADVANCED TECHNOLOGY, FUEL CE FUEL ENERGY INDUSTRY SAVINGS RATIO	NO.01 HEAT PACKING	NO.02 BAKING	NO.03 MALT BEVERAGE	NO.04 WOVEN FABRIC MILL	NO.05 SAH MILL	HO.06 REUSPRINT MILL	NO.07 WRITING PAPER MILL	HO.08 CORPUGATED PAPER	NO.09 BOX EOARD	NO.10 CHLORINE	NO.11 ALUHINA	NO.12 LOW DENS. POLYETHYL	HO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STYPENE-BUT. RUB.	NO.16 NYLON	NO.17 STYRENE	RC 8 ETHYLENE	NO.19 PETROLEUM REFINING	HO.20 TIRES	HO.23 INTECPATED STEEL	HO.24 GHAY IRGH FOUNDRY	NO.25 COPPER	MOTOR VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST EAVINGS CASES CHLY EHISSIGNS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST SAVINGS CASES

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SURHARY

6000			20114	HALLUMAL SUMMER							
NO.27 ADVANCED TECHNOLOGY,FUEL CELL,LOW TEMP.,PETROLEUM DISTILLATE	כברר, נסא דפ	11P., PETROLE	UN DISTI	LLATE	*** STRATEGY MATCH-T	GY MAT	CH-T				07
CATEGORY	TOTAL FUEL SAVINGS 10-*12 ETU		COST	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLAN	vo ≃		S  TOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL E COST SAVINGS CASES FUEL, COST & ENISSION SAVING	6 6 7 2 7 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	20291 18140 0 19356	1	-27566272 -27566272 0 -25904176	90105552 90165552 0 85687520		16030691 1308962 0 16035656	1 22744648 2 20452300 6 21743024 0 0 0	1	38774672 21761760 37778640	
		HATIO	HAL FUEL	HATIOHAL FUEL SAVINGS SUMHARY	URBARY						
CATEGORY	MATURAL PETE GAS DIST	OLEUM ILLAT	FUEL SAVINGS PETROLEUN E BOILER FUEL	CO GAS	10**12 BTU	E.B.	COAL	T OTHER SAVINGS	TOTAL FUEL		
SITE PLUS UTILITY TOTAL ALL	14772	-16168	-2372	0	•	0	26851	2197	4749		
FUEL SAVINGS CASES ONLY COSE SAVINGS CASES CHLY	5516	-16188	-5335	00	<b>.</b>	• •	19327	1479	6749		
EMISSIONS SAVINGS CASE ONLY	14349	-14970	-2374	0	• •	•	25916	2197	4608		
FUEL, COST SAVINGS CASES FUEL, COST & EMISSION SAVING	00	<b>0</b> 0	• •	00	00	00	<b>.</b> .	00	00		
THOLUGING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINGS CASES ONLY	14772 5516	-16188	-2372 -5365	000	000	000	26851 19327	2197	6746		
CUSSIONATIONS CASES CHENTSIONS SAVINGS CASE CHLY FUEL & COST SAVINGS CASES FUEL CASE TO EMEGATOR SAVING	0 0 0 0	-14970	-2374	• • • •			25916	2197	4 80 80 0		
FUEL, COST & EMISSION SAVING	0	0	5	ອ	D	0	0	0	0		

*** STRATESY HATCH-T PITAL EHISSIDHS ENISSIDHS SAVINGS ECS COST SAVINGS TOHS PER YEAR SIZE \$000 RATIO PLAHT UTILITY TOTAL (154)	975802 0.794 11580 88685 100265 7.31	.29456 0.7'8 1847 16029 17575 0.13*	573205 0.788 7677 95065 102742 4.90	713110 0.637 -20992 91607 70695 1.95	0 0.000 14469 98163 112632 0.00	367518 0.567 1161 64746 65907 43.90	647061 0.793 11905 109668 121573 25.04	862182 0.796 63137 511169 574306 66.94	806712 0.795 17108 140565 157674 66.00	973218 0.742 -151705 933030 781325 73.36	020174 0.575 -48824 186689 137864 81.66	803471 0.599 -31488 137668 106180 14.95	460832 0.637 -17474 76004 50530 11.65	644215 0.637 -31963 138974 107011 11.14	0 0.000 10056 4463 14519 0.00	242123 0.673 -8990 39471 30481 6.87	0 0.000 104155 7532 111687 0.00	0 0.000 780461 16628 797088 0.00	7570368 0.399 -657052 2867927 2210876 02.51	1268631 0.637 -41114 179572 138459 18.22	0 0.000 4342768 521814 4864582 0.00	179202 0.151 -6569 26993 20424 4.99	556766 0.636 -59919 259228 199309 14.57	832 0.637 -65595 285195 2	33140248 4224638 6696957 11121593 33140248 -1027269 6243359 5221030 4584473 93311 826149 919460 436245 5362 1674526 7040550
T *** S SAVINSS CAPITAL DOLLARS COST \$000 \$000	126 4542-	-5181 159	-57825 57	-109823 713	0	13860 367	28066 647	5569 2862	23470 806	-1234231 497	-393200 1020	-121818 808	-93353 460	-207021 64	0	-59246 24	0	0	-6071728 1757	-340799 126	0	-27528 17	-466043 155	683	-9722924 3314 -9722924 3814 -9722924 3814 -90454 458
RIVED DIST COST SA PATIO	-0.073	-0.036	-0.219	-0.277	0.000	0.032	0.057	0.003	0.041	- 265.0-	-0.888	-0.191	-0.332	065.0-	000.0	~0.556	0.00.0	000.0	-0.412	-0.841	0000.0	6.0.0-	-0.793	-0.762	
IP,COAL DE UTILITY FUEL SAVINGS	65.9	15.0	88.9	85.7	91.7	61.5	87.2	480.5	132.6	861.1	174.4	128.6	70.9	130.0	4.2	36.8	7.0	16.2	2679.3	167.8	437.4	25.2	242.2	35	6423 5317 762 164
SS LEVEL LL, LOW TER TOTAL FUFL SAVINGS	56.4	9.6	53.4	16.0	0.0	31.1	56.2	321.6	83.3	199.0	24.4	23.8	13.3	24.3	0.0	6.8	0.0	0.0	575.3	31.3	0.0	6.6	45.3	49.8	1633
ARY - PROCESON, FUEL CESTUDEN	0.404	0.245	0.379	0.136	000.0	0.259	0.402	0.412	0.411	0.193	960.0	0.137	0.142	0.142	0.000	0.152	0.000	0.000	680.0	0.142	0.000	0.043	0.142	0.131	
CTAS GERGRAL SUPPRY - PROCESS LEVEL NO.28 ADVARGED TECHROLOGY,FUEL CELL,LOW TEMP,COAL DERIVED DIST FUEL ENERGY TOTAL UTILITY COST S SAVIRGS FUEL PROUSTRY SAVIRGS SAVIRGS RATIO	NO.01 HEAT PACKING	HO.02 BARTHG	HO.03 MALT BEVERAGE	NO.04 WOVEN FASRIC MILL	HO.05 SAW MILL	RO.06 HERSPRINT MILL	13.07 WRITING PAPER MILL	NO.08 CORRUCATED PAPER	HO.09 BOX BOARD	HO.10 CHLOPINE	HO.11 ALUMINA	NO.12 LOW DENS. POLYETHYL	NO.13 HI DEMS. POLYETHYL	A3.14 FOLIVINYL CHLORIDE	HO.15 STIRENE-BUT. RUB.	KO.16 HYLCH	10.17 STYRENE	NO. 18 ETHYLENE	NO.19 PETFOLEUM REFINING	NO.20 TIRES	NO.23 INTECRATED STEEL	HOLDA GRAK IPON FOUNDRY	NO.25 COPPER	HOTOR VEHICLE	TOTAL ALL FUEL SAVINGS CASES CALY CAST SAVINGS CASES ONLY F HESCHOOL SAVINGS CASES ONLY

- CGGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURHARY

YE4R : 1990

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HO.28 ADVANCED TECHNOLOGY, FUEL	CELL, LOW TEMP, COAL DERIVED DIST	COAL DER	IVED DIST	*	*** STRATEGY MATCH-T	TCH-T			07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINSS SAVINGS 10**12 RTU 10**12 BTU	UTILITY FUEL SAVINOS 10**12 BTU	COST SAVINSS DOLLARS \$000	скр	117AL COST \$000	FLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	AVINGS EAR Y TOTAL	
		1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	:		1			
1101	0671	10557	70 70 10		0 26			-	
CITAL TARES ONLY	6200	10001	*0*20757-		00016/111	00246121	0/676007 00	00/16/26 0/	
TOTAL SALES CASES OFFICE	4000 4000	,,,,,	4307CJ-	-	00010	1001		_	
COST SAVINSS CASES URLT	7/67	4/15	09614/		30083168	601225			
EMISSIONS SAVINGS CASE ONLY	3201	6 547	566686		33300448	15032100		N	
FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING	2972	4715	741960 741960		30083168 30083168	522109	09 5255271 09 5255271	71 5777331	
		HATIO	HATIONAL FUEL SAVINGS SUNMARY	S SUNINARY					
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- FUE	FUEL SAVINGS	10**12 BTU	n	;			
CATEGORY	MATURAL PETI GAS DIS	PETROLEUM P DISTILLATE	PETROLEUM BOILER GAS FUEL	COAL DERIVED DISTILLATE	VED ATE BOILER FUEL	COAL FUEL	T OTHER SAVINGS	TOTAL FUEL	
		! ! ! !		 		1			
SITE PLUS UTILITY									
TOTAL ALL	14768	-408	6082	0 -15678	86143	25118	2197	5629	
FUEL SAVINGS CASES ONLY	6156	-403	3495		9 -8143	18717	1469	5529	
COST SAVINGS CASES ONLY	11.0	0	8201	0 -4510	0	5313	•	2972	
ENISSIONS SAVINGS CASE ONLY	9986	0	3665	0 -4555		12096	734	3201	
FUEL & COST SAVINGS CASES	1140	0	1028	0 -4510	0	5313	•	2972	
FUZL, COST & ENISSION SAVING	1140	0	1028	0 -4510		5313	0	2472	
INCLUDING COAL FUEL CONVERSION									
TOTAL ALL	8612	0	2558	0		4293	2197	-618	
FUEL SAVINGS CASES ONLY	0	0	0	0		-2107	1489	-618	
CCST SAVINGS CASES ONLY	0	0	0	0		1968	•	1963	
ENISSIONS SAVINGS CASE ONLY	6612	0	2588	0	0	5658	734	2120	
FUEL & COST SAVINGS CASES	0	0	0	0		1963	0	1968	
FUEL, CUST & EMISSION SAVING	0	0	0	0	0	1968	0	1968	

IGS ECS SIZE TOTAL (MM)	120599 9.53	122226 1.15	51939 0.00	452160 11.49	111149 0.00	336326 90.71	269043 70.25	1253058 93.22	337126 89.63	1869656 86.15	254079 88.48	378672 48.86	376535 68.93	230365 21.68	13722 0.00	119603 24.76	101012 0.00	717096 0.00	2710745 0.00	297284 35.36	4064582 0.00	18604 4.17	429262 28.32	473000 50.58	15909637 7339593 8690844
ENISSIONS SAVINGS TONS PER YEAR UTILITY TO	115429	144535	20256	240005	98163	397859	304681	1410668	378325	2187188	303953	449962	449784	270957	4463	142230	7532	16628	313959	349383	521814	56632	505030	556291	9511831 1 8529016 0 1093244
LANT	5169	-22310	31683	-87845	12986	-59533	-35838	-157610	-41199	-317532	-49874	-71289	-73249	-40592	9258	-22626	93430	595007	2396786	-52099	4342768	-3891	-75818	-83291	6358000 6358000 -1189426 0 7592599
PITAL EHISSIONS COST SAVINGS - \$000 RATIO P	0.810	0.813	0.000	0.811	0.000	0.814	0.782	0.783	0.784	0.815	0.717	0.612	0.611	0.775	0.000	0.811	0.000	0.000	0.000	0.776	0.00.0	0.143	0.775	0.776	i
CAPITAL (COST \$	1074936	956339	0	3120119	0	177777	1425403	636969	1742677	9767038	1351390	2072752	2034309	1302152	0	905929	0	0	0	1941931	0	133634	2395540	3330501	41408096 41463895 41463895 0 1074936
SAVINCS DOLLARS \$000	-59516	-215747	0	-712147	0	-391507	-389003	-1909302	-481001	-2089897	-520211	-405708	-552268	-387967	0	-169264	0	0	0	-581070	0	-4547	-799787	-973628	-10642264 -10642264 -10042264 -59516
COST	-0.153	-1.511	000.0	-1.796	0.000	-0.898	-0.795	-1.017	-0.836	-0.842	-1.175	-0.635	-1.966	-0.918	0.000	-1.558	0.000	000.0	0.000	-1.435	0.000	-0.008	-1.300	-1.285	'
UTILITY COST FUEL SAVINGS RATIO	107.9	135.1	18.9	504.6	7.16	377.8	242.4	1326.0	356.8	2018.6	283.9	450.4	419.8	253.4	4.2	132.6	7.0	16.2	293.3	326.5	487.4	21.0	472.0	519.5	0037 7918 1027
TOTAL UFUEL SAVINGS SA	9.59	4.64	0.0	177.4	0.0	141.2	7.67	450.5	122.9	770.9	71.8	151.0	147.6	69.8	0.0	47.4	0.0	0.0	0.0	0.06	0.0	9.6	130.2	143.2	2718 2718 0 60
	0.398	0.310	0.000	0.332	0.000	0.347	0.271	0.277	0.230	0.352	0.198	0.338	0.334	0.237	0.00.0	0.337	0.00.0	0.000	0.000	0.237	000.0	0.052	0.237	0.226	
FUEL EMERGY SAVINSS RATIO	HO. DI MEAT PACKINS	NO.02 BAKING	HO.03 HALT BEVERAGE	HO.04 HOVEN FABRIC MILL	HO.05 SAW HILL	HO.06 NEWSPRINT MILL	NO.07 KRITING PAPER MILL	NO.03 CORRUGATED PAPER	NO.09 BOX BOARD	MO.10 CHLORINE	NO.11 ALUMINA	NO.12 LOW DENS, POLYETHYL	KO.13 HI DENS. POLYETHYL	NO.14 FOLYVINYL CHLORIDE	HO.15 STIRENE-BUT. RUB.	из. 16 итеон	HO.17 STYRENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	MO.20 TIRES	PO.23 INTECRATED STEEL	holog GMAY IRON FGUNDAY	HOLDS COPPER	са мен	TOTAL ALL  K.E.L. SAVINGS CASCS ONLY  COST SYVINGS CASCS ONLY  ENISSIEMS SAVINGS CASC ONLY  FILE: 3 COST SYVINGS CASC ONLY  FILE: 3 COST SYVINGS

	_			A1 .4			0	_																		
		INGS TOTAL		51953952		20774416	-				JTAL FUEL	!		00011	11388	0	126	0	0		11388	11358	0	126	0	•
		EHISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	;	38494416	0	2221203	0	0			TOTAL DTHER FUE SAVINGS				170	•	2031	0	•		2197	170	0	2031	0	0
	H-T	EMIS TOP PLANT		13459493	0	18553216	0	0			COAL 07			<b>かくかっ</b>	34590	0	7618	0	0		41979	34590	0	7618	0	0
<u>.</u>	*** STRATEGY MATCH-T		•								BOILER FUEL		,	5	0	0	0	0	0		0	0	0	0	0	0
IVES STUDI	*** STR/	CAPITAL CCST \$000		171367072	0	2060448	0	0	IMARY	10**12 BTU	COAL DERIVED DISTILLATE BO		•	•	0	0	0	0	•		0	0	0	0	0	0
COGENERATION TECHNOLOGY ALTERNATIVES STUDY NATIONAL SUMBRY		10		-45315632	0	-114081	0	0	NATIONAL FUEL SAVINGS SUMMARY	10**1	GAS DIS		•	>	0	0	0	0	0		0	0	0	0	0	0
TECHNOLOGY ALTERINATIONAL SUMMARY	UM DIST.	COST S	;	7 7	7				HAL FUEL S	FUEL SAVINGS	ETROLEUM BOILER FUEL	1	į	47.64	1522	0	4456	0	0		5934	1522	0	4456	0	0
SENEPAT ION	P.,PETROLE	UTILITY FUEL SAVINGS 10**12 BTU	1	35418	0	2030	0	0	NATIO	FUE	PETROLEUM PETROLEUM DISTILLATE BOILER FUEL			-2/213	-27213	0	-163	0	0		-27213	-27213	0	-183	0	0
· CO	се, нісн тем	TOTAL FUEL SAVIHGS 10**12 BTU		11398		126	•	0		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NATURAL PE GAS DI			14//5	2319	0	12514	0	0		14772	2319	6	12514	0	0
	TEAR : 1970 HO.29 ADVANCED TECHOLOGY,FUEL CELL,HIGH TEMP.,PETROLEUN DIST	CATEGORY		TOTAL ALL	COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING			CATEGORY		SITE PLUS UTILITY	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ENTSSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING	INCLUDING COAL FUEL CONVERSION	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	EMISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

01 ECS SIZE (MH)	8.52	0.18*	5.99	1.46	00.00	16.91	30.50	80.74	77.62	26.93	48.52	28.08	8.25	7.97	9.60	3.48	00.0	00.00	98.59	12.88	00.00	18.84	10.30	18.45	
NGS  TOTAL	111087	5522	118144	68711	112632	574690	138883	650732	175730	371563	107907	204489	54785	100732	26271	20256	111687	797088	1758495	129349	4664582	91223	186221	205763	11003560 5117591 1581390 9956561 1531390
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	103276	22504	116043	69192	19186	722330	133230	615020	164967	344946	112055	258438	54325	100219	25862	20171	7532	16623	1726853	126090	521814	102353	164878	204213	5853093 5208959 1502069 450872 1502069 1432877
LAM	7811	61	2101	-482	14469	-147640	5652	35712	10763	26616	-4148	65655-	095	513	410	85	104155	780461	31642	1258	4342768	-11129	1344	1549	5150430 -91370 -9320 5367829 79320
*** STRATEGY MATCH-T PITAL ENISSIONS CUST SAVINGS - \$000 RATIO P	0.790	0.776	0.781	0.670	0.000	0.774	0.786	0.783	0.789	0.562	0.653	0.739	0.745	0.779	0.731	0.723	0.000	0.000	0.400	0.780	0.000	0.575	0.779	0.780	
*** STRAT CAPITAL 6 CUST 5	840168	136677	519630	385739	•	2784374	586463	2564735	709789	1448957	142841	1080751	236014	436662	124259	91792	0	0	7705962	645869	0	443234	790279	1107648	23087904 23087904 6460149 17945088 6460143 6460143
T. SAVINGS DOLLARS \$000	-3605	-11061	-56118	28510	0	-855369	30920	31203	39902	378992	-55624	-14874i	34078	31724	-13045	11640	0	0	-764043	-19570	0	-35539	-15618	14049-	<u> </u>
DER. DIST COST S RATIO	-0.023	-0.077	-0.213	0.072	0.000	-1.963	0.063	0.017	0.069	0.153	-0.126	-0.233	0.121	0.075	-0.160	0.111	0.000	0.000	-0.052	-0.049	0.000	-0.064	-0.027	-0.055	•
TEMP, COAL UTILITY FUEL SAVINCS	96.5	21.0	108.5	64.7	7.16	686.0	105.9	573.1	155.6	318.4	104.7	241.5	50.7	93.7	24.1	18.8	7.0	16.2	1613.3	119.7	437.4	95.7	172.8	190.7	1466 1466 1466 1466 1466 1466 1466
	64.4	11.6	62.5	34.8	0.0	227.4	6.49	369.3	101.0	220.1	52.3	79.0	33.6	52.4	14.1	10.4	0.0	0.0	10101	67.6	0.0	39.4	97.7	107.5	7 4 9 9 9 1 1 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1
Y - PROCES Y,FUEL CEL FEL ENERGY SAVINGS RATIO S	0.419	0.256	0.339	0.323	000.0	0.318	0.410	0.420	0.425	0.329	502.0	0.295	0.375	0.308	0.362	0.301	000.0	000.0	0.137	0.390	0.003	0.219	0.390	0.352	•
CTAS GENERAL SUTUARY - PROCESS LEVEL NO.30 ADVALCED TECHNOLOSY,FUEL CELL, HIGH FUEL ENERGY TOTAL SAVINGS FUEL RATIO SAVINGS	HO. 01 HEAT PACKING	NO.02 BAKING	KO.03 HALT BEVERAGE	NO.04 HOVEN FABRIC MILL	HO.05 SAH MILL	KO.06 NEWSPRINT MILL	NO.07 WRITING PAPER MILL	NO.08 CORRUSATED PAPER	HO.09 EOX EOAPD	NO.10 CHLORINE	HO.11 ALUMINA	KO.12 LOW DEMS. POLYETHYL	KO.13 HI DEHS. POLYETHYL	NO.14 POLYVINAL CHECRIDE	NO.15 STYRENE-BUT, RUB.	HO.16 HYLOH	HOLIZ STREME	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	MO.20 TIRES	NO.23 INTEGRATED STEEL	HOLCA GRAN IRCH FOUNDRY	NO.25 COPFER	HO.25 MOTOR VEHICLE	1 - ALL 94V/VGS CACES CHLY 5/11h-3 C4SES CHLY 817h-3 SAVIN-3 C4SE B \$ C7SI 8*** MIGS CASE *** C0ST 8*** MIGS CASE

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SURMARY

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	465  TOTAL	1	38943696	23132704	7240816	27959098	7240816	7109112
	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO		26569376	25231824	6902336	13056398	6902036	6770207
' HATCH-T	EMISS TON PLANT		12374370	-116603-	337981	14902661	337991	333904
*** STRATEGY MATCH-T	CAPITAL COST \$000		105334384	105554384	29705643	52378263	29705643	23906256
ER. DIST.	COST SAVINGS DOLLARS \$000		-13956623	-13953823	2019221	90737	2010221	1963573
EIIP, COAL DE	UTILITY FUEL SAVINGS 10**12 BTU	; f 1 4 1	671.42	23474	6135	11933	6155	0001
EL CELL, HIGH TEMP, COAL DER. DIST.	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU		11094	11054	3032	6639	3362	3315
YEAR : 1990 RO.30 ADVANCED TECHNOLDGY,FUEL	CATEGORY	9 8 8 8 7 7 8 8 8 7 7 8 8 7 7 8 7 8 7 8	10TAL ALL	FUEL SAVINGS CASES ONLY	COST SATINGS CASES CALY	ENISSIONS SAUDHOS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING

HATIOHAL FUEL SAVINGS SURMARY

TOTAL FUEL		11094	11094	3882	6639	3852	3815		4527	4527	2519	3733	5519	5692
OTHER Savings		2197	1501	37	2102	37	33		2197	1501	37	2102	37	33
COAL FUEL	i !	31289	24915	7025	18385	7025	6833		9399	3025	2462	8701	2485	1552
OILER FUEL		-5963	-5963	0	-5694	0	0		0	0	0	c	٥	0
10**12 BTU COAL DERIVED iAS DISTILLATE BOILER FUEL		-18639	-18639	-5425	10.55-	-5425	-5313		င	0	0	0	0	0
  6A3	1	0	0	0	0	0	0		0	0	0	0	٥	0
FUEL SAVINGS 1 PETROLEUM 1E COILER FUEL		6082	3499	506	5406	÷86	406		2584	0	0	4050	0	၁
- FU POLEUM ( TILLATE	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-425	-425	0	-17	0	0		0	٥	0	0	0	0
HATURAL PETFOLEUM GAS DISTILLATE		14768	9029	1253	14013	1253	1240		8563	0	c	0563	0	0
CATECORY	SITE PUS UTILITY	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES CHLY	ENISSIONS SAVINGS CASE ONLY	FLEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING	INCLUDING COAL FUEL CONVERSION	TOTAL ALL	FUEL SAVINGS CASES DRLY	COST SAVINGS CASES OHLY	ENTSSICHS SAVINGS CASE ONLY	FUEL & COST SALINGS CASES	FUCL, COST & EMISSION SAVING

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01 ECS SIZE (HJ)	*95.9	0.14*	5.28*	1.28*	0.00	35.59	26.81	07.14	68.42	23.10	44.14	6.35*	7.96#	7.40*	7.60*	3.13*	0.00	0.00	89.82	11.78*	0.00	1.34*	9.46*	10.90*	
INGS  TOTAL	105122	21327	122780	71159	112632	65045	143302	676347107.14	162111	374648	114918	68556	60705	108600	27316	21366	111687	797088	1868963	137929	4364582	6628	199100	219592	10481995 4650000 402003 402003 402003 402003
ENISSICHS SAVINGS TONS PER YEAR UTILITY TO	79347	17357	102427	60743	98163	52595	117241	544524	145533	296084	102012	58965	52331	93052	22860	18174	7532	16628	1573230	117205	521614	7105	169732	870	4461745 3317610 3317610 3317610 3317614 3317614 3317614 3317614
LANT	25775	3970	20353	10416	14469	12450	26561	131822	36577	78564	12906	1256	8324	15549	9555	3192	104155	780461	295733	20723	4342768	-477	29368	٠.	601000 778396 778396 6010379 6010379 601339
STRATEGY MATCH-T LL EMISSICNS SAVINGS - RATIO P	0.901	0.894	0.891	9.99.0	0.000	0.560	9.800	969.0	0.8%	0.567	0.740	0.387	0.826	0.889	0.630	0.763	0.000	0.000	0.440	0.890	000.0	6,049	0.890	0.890	i
*** STRAT CAPITAL E COST :	2675577	615969	1946062	1696425	0	713957	1668950	6179763	1824271	4273583	1315000	1068501	196106	1629399	£20055	366394	0	•	20282224	2224268	0	192773	2307590	3674644	56497248 56497248 56497248 56497248 56497248 56497248
SAVINGS DOLLARS \$000	-41131	-26111	-34645	-17034	0	83470	110566	538155	160900	480562	13730	39705	38934	51077	-8267	3801	er.	0	396307	564	0	-9116	1095£	-37073	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
GASIFIER COST RATIO	-0.106	-0.193	-0.133	-0.043	0.000	0.191	0.226	0.297	0.230	0.194	0.031	0.062	0.139	0.121	-0.114	0.092	0.000	000.0	0.027	100.0	0.000	-0.017	0.007	6+0.0-	'
TEHP., COAL UTILITY FUEL SAVINGS	74.2	10.2	95.8	56.8	91.7	6.67	93.2	511.9	137.2	273.3	95.3	55.1	48.9	87.0	21.3	16.9	7.0	16.2	1469.8	109.5	4.104	9.	153.6	174.7	4155 4167 4163 4163 4163 4163
SS LEVEL LL,HICH TOTAL FUEL SAVINGS	42.2	6.9	35.5	18.9	0.0	22.6	39.8	227.2	62.7	133.2	26.0	17.7	15.4	23.6	8.1	5.7	0.0	0.0	602.4	37.3	0.0	2.3	64.0	59.3	
APY - PROCESSOCY, FUEL CEL FUEL EMLRSY SAVINGS PATIO S	0.325	0.167	0.240	0.175	0.00.0	0.163	0.267	0.280	0.235	762.0	0.149	0.101	202.0	0.222	0.224	0.193	0.000	0.000	0.114	623.0	0.00.0	0.015	€22.0	907.0	
CTAS GENEPAL SUMMAPY - FROCE 10.31 ARVANGED TECHNOLOGY,FUEL CE FUEL ENERSY THDUSTRY SAVINGS PATIO	HO.01 MEAT PACKING	NO.02 BAKINS	NO.03 MALT BEVERAGE	MO.04 NOVEM FARRIC MILL	NO.05 SAN MILL	HO.05 HEWSPRINT MILL	HOLOZ KRITIKS PAPER HILL	MOLOG COMPUSATED PAPER	NO.09 BCK ECARD	ьэ. тэ сисовтие	KO.11 ALUMINA	HO.12 LOW DENS. FOLYETHYL	NO.13 HI DENS. POLYETHYL	POLIT FOLYVINEL CHLORIDE	RO.15 STRPERE-BUT. RUB.	HO.15 HYLON	NO.17 STYPENE	KO. 18 ETHYLENE	HO.19 PETPOLEUM PEFINING	HO.20 TIPES	KOLZB INTEGOATED STEEL	KOLZA GPAY IPON FOUNDRY	F3.25 COPPLR	HOLDS HOTOR VEHICLE	54.14.5 C.SES CHLY 54.17.5 C.SES CHLY 104.7 55 C.SES CHLY 104.7 55 C.SES CASE O 3 C.SE C.VERSS CASE C.SE C.VERSS CASE

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

> 000 0 0 1 F 4 0										
	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 6TU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 B	COST	SAVINGS DOLLARS \$300	CAPITAL COST \$000		E PLANT	S	SAVINGS YEAR	S  TOTAL
TOTAL ALL FUEL SAVINGS CASES ONLY FORT CONTAGE CHAN	1 M M M M M M M M M M M M M M M M M M M	12934 11e50		8116611 611c611 847a195	182705264	. 449	17098992	92 14074669 01 12737120	•	31173664
COST STATES CALL ENTSSIONS STATESS CASE ONLY FUEL & COST SAVINSS CASES FUEL.COST & EMISSION SAVING	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			8134250 8474195 8474195	15755450 162335776 159554560 159854560	2 2 2 2	17099904 2426266 2426266			31160963 14181648 14181648
CATEGORY	MAIU3AL PETR GAS DIST	HAT PETROLEUM DISTILLATE	NATIONAL FUEL SAVINGS SUNTHARY  FUEL SAVINGS 10##12 BT  NATU:AL PETROLEUM COAL DERI  GAS DISTILLATE GOILER GAS DISTILL  FUEL	SAVINGS SURINARY 10##12 BTU COAL DERIVI GAS DISTILLA	S SUHITARY 10**12 BTU COAL GERIVED DISTILLATE	BOILER	COAL	OTHER SAVINGS	TOTAL	
SITE PLUS UTILITY TOTAL ALL FUEL SAVINGS CACES CHLY COST SAVINGS CASES ONLY ACCOST SAVINGS CATES ONLY	14769 6206 5892	21.44 21.44 21.44 21.44	6082 3499 3397		0000	2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	6136 -136 -198	2197 1501 1357	4703 4703 4348	
ENTRY DAYLORS CASES FUEL 2 COST STAINS CASES FUEL COST & ENTSTEN SAVING	5695 5695 5895	6007 1 1 1	3597 3597 3597	900		15694 -5694 -5694	-196 -196 -193	1357	07E4	
TUCLUDING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINGS CASES DRLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL A COST SAVINGS CASES	9775 970 970 970 970	50 50 50 50 50 50 50 50 50 50 50 50 50 5	3056 672 575 3056 575	00000	00000	00000	8964 2590 2733 9069	2197 1501 1357 2119 1357	5551 5551 5027 5527 5528	

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PANE	17.18	12.2	2.5	5.3	3	27.52	23.08	16.53	2.53	26.47	6.63	28.09	23.14	22.05	5.5	13,75	2		25.34	7.03		2.91	28.89	25.77	
	132676 1	72499	32546	136236	35.9211	127551 2	201467	2 024202	55576 2	710015	2594 28.83	131256 2	115052 2	200403	7287	40212 1	111667	797028	486371	270927 27.03	4664562	7297	391313	430892	337961 337961 5825939
ENISSIDAS SAVINES TOUS FER TEAR UTILITY TO	211352	147651	73262	265617	49169	239631	\$52137	363519	187.2	1313992	£096 <b>9</b>	252574	251128	402751	16130	77181	7532	16628	1069258	165025	\$21814	15259	752958	828522	7517041
15	-78674	-75351	-40713	-127398	14469	-112080	-260670	-161693	-47921	-603977	-43358	-121287	-106200	-193258	-8643	-36969	104155	780461	-582868	-249564	4342768	-7963	-361654	-397630	1603676 -3637975 -3637975 -3637976
PITAL ENISSIONS COST SAVINGS \$600 RATIO P	<b>6.53</b>	9.476	0.300	. 485	• • • • • •	0.491	6.469	0.341	9.345	6.495	0.211	9.405	6.435	0.485	0.270	484.0	0.000	0.000	0.130	9.485	0.00	0.85	9.405	6.485	•
CAPITAL COST 1 5000	2543618	1763910	823851	1354541	•	1513970	3487275	3260129	900453	8354883	020909	1600917	1424939	2607343	169335	807019	•	•	10215320	+942.49	•	145944	4847269	6955015	2650 2650 2650 2650 2650 2650 2650 2650
COLLER GRADE CUST SAVINTS DOLLATS :110 6060	-235021	-304334	-139958	-330219	•	-196033	-664935	-278776	-45429	-1014476	-117112	-146913	-242414	-477784	-26340	65+29-	0	•	-1726292	-745297	•	-8026	-973907	3	-9031133
	-0.604	÷.13	-0.531	-0.653	0.00	-0.450	-1.359	-0.148	-0.079	-0.409	-0.265	-0.230	-9.863	-1.130	-0.352	-0.774	0.00	0.00	-0.117	-1.340	0.000	-0.015	-1.656	-1.670	
COAL DERIVED UTILITY FUEL SAVIESS RA	197.6	136.2	68.5	246.2	41.7	227.6	439.0	300.5	97.6	1012.7	65.2	235.0	206.5	370.6	15.0	72.0	7.0	16.2	938.9	4.954	4.564	14.3	703.6	773.7	6630
	7.9	34.0	13.3	72.4	0.0	70.4	132.6	115.2	X.5	391.7	8.9	2	. <b>69</b>	109.9	3.3	21.0	0.0	0.0	4.695	0.54	6.0	5.9	205.4	,	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
DGY-STIRLIN PUEL CHERST SAVINGS PATIO	0.354	6.204	0.110	0.260	0.00	0.275	6.270	0.174	0.160	0.033	0.041	0.003	6.203	0.263	0.111	0.262	0.000	0.000	0.050	0.063	0.000	0.033	0.263	0.254	
CTAS GENERAL SURDAN - FROCESS LEVEL 140.32 ADVANCED TECHNOLOGY, STIFLING ENGINE FUEL ENGES TOTAL TADUSTRY SAMINGS FUEL PATIO SAVINGS	NO. 01 HEAT PLCS. ING	130.02 BANTES	HO. 03 HALT CEVERAGE	NO. 0+ NOVEM FARRIC MILL	HO.05 Stat HILL	ED. OG HENDEPINT MILL	10.07 LAITING PAPER MILL	NO.03 CORNESTED PAPER	1.3.09 DOX F.3ARD	ED. 10 CALCAINE	SC. 11 ALCHINA	HOLLE LCM DENS. POLYETHYL	ROLLS HT DENG. FOLKETHAL	POLITE FOLYWHAL CHLOFIDE	HO.15 ST.REHE-BUT. PUB.	FO.15 WILDS	POLLE STIPCHE	NO.10 ETHILETE	NO.19 PETROLFUN PEFTHING	NO.23 TIRES	NO.23 INTEGRATED STEEL	119.24 CPAY IRON FOUNDAY	HO.25 COPPER		TOTAL TARENTS CASES CALL FUEL SAVINGS CASES CALV ENISSIEND SAVINGS CASE ONLY FUEL & CONT SAVINGS CASES FUEL & CONT SAVINGS CASES

- COSEMENATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUFFARE

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	TOTAL	9923921E 69915961			7863	. •	••	•	1335	-1335	•	• •	•
1 1 1 1 1 1	ENISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	31117920 2978036- 1337551		TOTAL OTHER FUEL SAVINGS		. <b>.</b>	ŧ.	•		1501 -	• ;		•
- -	ENTS. TOPE	145010		COAL OT			6376	-		-2036	•	•	•
*** STRATEGY PATCH-T				COLLER	-30974	-30974	••	•	•	0	•	• •	•
	CAPITAL COST \$000	212906212	UPPLARY	COAL DERIVED DISTILLATE	•	• •	• •	•	•	o	• •	• •	•
GRADE	COST SAVINGS DOLLARS \$000	-33637104	NATIONAL FUEL SAVINGS SUFFLARY	00 SA3	•	• •	• •	0	•	0	• •	•	•
VED BOILER			ICHAL FUEL	FUEL SAVINGS FETROLEUM E BOILER FUEL	3809	6 tr	÷652	•	2534	•	0		•
COAL DERI	UTILITY FUEL SAVINGS U 104-12 BTU	3 27979 3 20715 0 1254	HAT	וועו	,	14:5		•	۰	0			•
LING ENGINE	YOTAL FUEL SAVINGS 10*+12 DTU	7 7 7 6 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6		HATUGAL PETP	607.4	27.0	356 3	0	3563	•	0.14		•
NO.32 ADVANCED TECHNOLOGY, STIRLING ENGINE, COAL DERIVED BOILER GRADE	CATEGORY	TOTAL ALL FUEL SAVINGS CASES CRLY COST SAVINGS CASE CRLY FUEL - COST SAVINGS CASE FUEL, COST SAVINGS CASES FUEL, COST LETISSICAL SAVING		CATEGORY	SITE PLUS UTILITY TOTAL ALL	COST SAUNGS CASES ONLY	EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES	FUEL, COST & EMISSICA SAVING	DICTUDING COST FUEL CONVERSION TO CAL ALL	FUEL SAVINGS CASES CHLY	COST SAVINGS CASES CALT	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

01 SAVINGS ECS EAR SIZE Y TOTAL (EW)	61 161878 28.08	30 2449 0.17*	67 24559 4.33	62 182332 9.70	63 112632 0.00	50 15604 26.18	77 33598 20.43	64 164397 27.19	26 45724 25.93	64 889546 27.71	56 18811 22.24	19 166251 29.43	41 145734 27.29	09 265,37 26.04	11 5563 6.08	87 51165 21.75	7532 111687 0.00	28 797088 0.00	55 310064 26.26	93 27156 8.83	14 4864532 0.00	02 3716 2.78	35 38545 7.11	430	76 848159 55 2574710 73 573124 37 5285969 73 573124
EMISSIONS TONS PER Y UTILIT	-163783 325661	16831 19330	53309 7836	30255 65258	14469 93163	20845 36459	50379 83977	25767 39016	58201 103926	3218 202276	53545 72356	223368 38961	195707 341441	6922 622709	-11548 17111	-68622 119787	104155 75	780461 1662	30501 175077	5133 822	342768 52181	-10686 14402	80840 11933	-85469 12956	1,61,1
STRATEGY MATCH-T AL ENISSIONS SAVINGS RATIO PLANT	91- 955.0	260.0	0.216 -5	0.400 -25	0.000	0.134 -2	0.263 -5	0.274 -22	0.283 -5	0.415 -113321	0.150 -5	0.408 -22	0.408 -19	0.408 -356	0.205 -1	9- 205.0	0.000 10	0.000	.77- £80.0	0.226 -5	0.000 434	0.027 -1	0.2228	8- 633.0	1550788 -3950578 -1139449 -1136449
*** STRATES CAPITAL EN CCST SA:	4822464	650641	1354445	4971137	0	432431	1049177	4426441	1226087	15438643	641716	3060354	2903992	4305136	262659	592966	0	0	14456436	1337221	0	263217	17111192	6149	
SAVINGS DOLLAPS \$000	-340497	-65648	-85054	-400082	0	40232	62772	200313	85919	-921490	-33549	-137933	-229315	-457878	-13639	-85217	O	0	3923613	~19930	0	955801	-7201	-61567	7 M 37 37 3 G 37 37
COST PATIO	-0.393	-0.460	-0.323	-1.160	0.000	0.092	0.123	0.107	0.149	-0.371	-0.076	-0.216	-0.818	-1,083	-0.189	-0.781	0.000	0.000	0.266	650.0-	000.0	0.156	-0.01	-0.032	
COALCAFB) UTILITY FUEL SARINGS	304.4	18.1	73.3	403.5	91.7	34.6	6.6.8	306.8	93.0	1666.8	67.6	364.1	319.7	E 32.3	16.0	111.7	7.0	16.2	1009.6	70.9	487.4	13.5	111.6	121.0	663 150 150 150 150 150 150 150 150 150 150
	39.5	-3.9	4.5	70.4	0.0	8.0	12.5	6.19	54.6	386.0	6.0-	68.0	59.5	163.8	1.5	50.9	0.0	0.0	103.2	9.9	0.0	1.8	9.3	11.3	ଳ୍କ ଅଟେ ଅଟେ ଅଟେ ଅଟେ ଅଟେ ଅଟେ ଅଟେ ଅଟେ ଅଟେ ଅଟେ
SANT FRUE COC,STIPLING FUEL EMESON SAVINGS RATIO	0.043	-0.092	0.036	0.161	0.000	0.007	0.105	0.123	0.135	0.130	-0.006	0.174	0.17:	0.174	0.048	0.174	0.000	0.000	0.021	0.050	900.0	0.012	673.0	0.0.0	
HO.33 ADVANCED TECHNOLOGY, STRUCTOS LEVEL HO.33 ADVANCED TECHNOLOGY, STRUCTS EDITH  THOUSTRY  RATIO SAVINGS  RAITO SAVINGS	HO. 01 REAT PACEINS	HO.02 BAKING	HO.03 MALT BEVERAGE	NO.04 HOVEN FARRIC HILL	HO. 65 SAH HILL	NO.30 NEWSPRINT MILL	NO.07 ERITING PAPER MILL	NO. CO CUPPUSATED PAPER	NO.09 EOX DOARD	HO.10 CHLORINE	HO.11 ALUNINA	NO.12 LCW DENS, POLYETHYL	ED.13 HE DERS, FOLYETHAL	HOLTA POLYCIMIE CHEORIDE	to.15 STIPENE-BUT. RUB.	ES. 14 BELOH	NO.17 STAPENE	HO.10 ETHTLENE	NO.19 PETROLEUM REFINING	MO.CO TIPES	RO.23 THIEGPATED STEEL	HOLEH CPAY IPON FOUNDAY	RD.05 COPPER	MOLOS MOTOP VEMICLE	ALL CASES ONLY S CATUS ONLY AVENTS CASE SAVINSS CASE

- COCEMERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUBJECT

COST SAVINGS CAP 5000  DOLLARS 5000  TOUL SAVINGS CAP 19400  TOHAL FUEL SAVINGS SUBINA 19766 7  TOHAL FUEL SAVINGS SUBINA 19766 7  TOTAL SAVINGS 10**12 PETFOLEUM 6AS 01511 FUEL 6AS 0	CAPITAL CGAPITAL CGST \$000  \$000  \$000  \$000  \$73062816	1145 1145 1145 1167 1167	EMISSIONS SAVINGS  TONS FER YEAR IT UTILITY TOTAL
TOTAL UTILITY COST SAVINGS FUEL FUEL 600LARS SAVINGS SAVINGS 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**12 ETU 10**13 ETU 10**14 ETU 10**14 ETU 10**15 ETU 10**1	AAL 000 1297 6281 000 - 4470 6281	14 1 33 4 K M	E 1 2 1 2
34,00 20199 156920 294230 34,13 16,10 16,1	0.291 0.293 0.291 0.291 0.291	16428 16428 16428 16428 16428 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
347.3 18-160 2042300 341 51-57 10419766 51 10419766 51 10419766 51 10419766 51 10419766 51 10419766 51 10419766 51 10419766 51 10419766 51 10419766 51 10419766 52 105 111111111111111111111111111111111	0 5 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	16425 16425 73494 16425 0 0 0 OTH SAV	792 7791 7551 1 7791 0 0 TOTAL FUEL
ONLY 941 5157 10419766 0 1254 10419766 0 1254 10419766 0 1254 10419766 0 1254 10419766 0 1254 10419766 0 1254 10419766 0 1254 10419766 0 1255 10419766	2	16425 73494 16425 0 0 0 OTH	7772 7551 1 7791 0 TOTAL FUEL
23LY 941 53c7 10419766  55 0 0 0 0  MATICHAL FUEL SAVINGS SUSSI  HATUTAL FETPOLEUM PETFOLEUM COAL 0  5AS DISTILLATE BOILER GAS 0151  FUEL SAVINGS 0151  FUEL SAVINGS 0151  FUEL SAVINGS 0154  FUEL SAVINGS 0151  FUEL SAVI	VED .	73494 16425 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7551 1 7791 0 TOTAL FUEL
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HATIONAL FUEL SAVINGS SUBBL HATUTAL PETPOLEUM PETFOLEUM COAL O GAS DISTILLATE EOIDER GAS DISTI FUEL  14768 -425 6092 0  5733 -17 3307 0  5735 -17 3307 0  5954 0 2526 0  9954 0 2520 0  16768	VED ATE	O OTHE	// 71 0 0 TOTAL FUEL
#ATIONAL FUEL SAVINGS	U . VED . ATE		10
14766 -425 6092 0 5703 -17 3097 0 5703 -17 2020 0 5503 0 5504 0 5503 0 0 0 0 0 0 0 510H	2		353
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14756 -429 0982 0 1573 -17 3097 0 1573 -17 3097 0 15756 0 15756 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
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SICH 16758 - 1081 A	<b>,</b>	7851 9578-	145 /8
1674 a 2000			•
2000 6771 00/11	c c	-1001 2197	7071 2004
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7AL 2748	4301	010			10.87	44.6	29.74	8.46	15.62	2.08	2.72	2.58	2.76	1.16	0.00	0.00	0.00	4.01	0.00	8.04	3.24	5.87	
A 4		1391	112632	14938	32643	158331	43114	102568	19644	13634	11731	21456	5341	4255	111687	797088	2984452	25481	4864582	8327	40411	44573	0.10 10 11
TONS PER YEAR UTILITY TO 48 39234	16791	22479	69166	21550	47337	226020	62629	10801	36154	19272	17823	32295	8255	6299	7532	16628	313958	39755	521814	42351	57873	64622	
TONS PLANT L	1661-	-10074	14469	-6612	-14694	-67689	-19815	-5483	-16511	-5633	-6091	-10839	-2414	-2424	104155	780461	561,0484	-11274	4342768	-34024	-17462	-20049	いかいかい
<b>⊢4</b> −₹ •	.20	0.136	0.000	0.129	0.277	0.363	0.320	0.155	0.220	0.077	0.160	0.199	0.319	0.152	0.00.0	0.00.0	0.000	0.292	0.00.0	190.0	932.0	0.278	
•	4191	427962	0	268673	652645	2823355	814393	1456113	465178	286181	257759	619695	126886	102049	0	0	0	682121	0	622960	842162	1157160	141 345 556 556
DOLLARS \$000 -32391	400	-11500	0	11953	56857	141834	36618	194137	-9233	8202	3512	7220	9000-	95	0	0	0	100+0	o	-99167	23033	-27681	വ വെയാ
0.	26.	-0.054	0.000	0.027	0.050	0.076	0.004	0.078	-0.021	0.013	0.013	0.017	-0.031	0.001	0.00.0	0.00.0	0.000	0.025	0.00.0	-0.178	0.039	-0.037	i
FUEL SAVINGS 36.7	n .	21.0	91.7	20.5	37.6	212.5	59.3	2.66	33.8	18.0	16.6	30.2	7.7	6.2	7.0	16.2	293.3	37.2	487.4	39.6	54.1	60.3	1 (4 0 0 0 0 0
0.	٦,	8.03 9.6	0.0	11.7	21.3	125.1	33.5	97.3	12.3	10.9	8.8	16.3	4.8	3.0	0.0	0.0	0.0	22.8	0.0	o	32.5	35.0	ത്ത്ത്ത് വ
	5.0.0	0.240	0.003	6.000	0.151	0.244	0.216	0.145	0.100	0.063	0.116	0.142	0.216	0.105	000.0	0.000	0.000	0.203	000.0	-0.031	0.203	0.168	
INDUSTRY :		HALT BEVERAGE HOVEN FABRIC MILL	יורר	REKSPRINT MILL	HO.O7 WPITING PAPER MILL	NO.03 COPRUGATED PAPER	BOX BOAPD	CHLCRINE	ALUMINA	NO.12 LOW DENS, POLYETHYL	HI DEMS. POLYETHYL	PO.14 POLIVINIK CHLORIDE	STIRENE-BUT, RUB.	ится	STIRENE	ETHYLENE	HO.19 PETPOLEUM REFINING	NO.20 TIFES	NO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 COPPER	HO.26 HOTOR VEHICLE	AVINGS CASES CRLY AVINGS CASES ONLY CHS SAVINGS CASE OF COST SAVINGS CASE OST & ENISSION SAV
		BEVERA	7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	H NIEL	SVEH FACK. SW NILL EKSPRIKT M	SAW KILL KESPRIKI M PITING PAP	NOVELL FACAL BAW NILL NEWSPRINT M MPITING PAP EOTRUGATED	SAW ALL NEWSPERT M WEITING PAP COSSUGATED	SAW ALL NEWSPRINT M WPITING PAP COPRUGATED BOX BOAPD CHLORINE	SAW FILL NEWSPRINT M WOITING PAP CORNUSATED EQK BOAPD CHLCRINE	SAW FILL NEWSPRINT N WPITING PAP COPRUSATED BOX BOAPD CHICRINE ALUMINA LOW DENS. P	SAW FILL NEWSPRINT M WPITING PAP COURDGATED BOX BOAPD CHICRINE ALUMINA LOW DENS, P	SAW FILL NEWSPRINT M WPITING PAP COPPUSATED BOX BOAPD CHLORINE ALUMINA HI DENS. PO POLIVINYL C	SAW FILL NEWSPRINT IN WRITING PAP COTRUGATED BOX BOAPD CHCRINE ALUMINA LOW DENS. P AL DENS. P AL DENS. P STARENE-EUT	SAW FILL NEWSPRINT M WOITING PAP COUPUGATED BOX BOAPD CHICRINE ALUMINA LOW DEMS. P AI DE	SAW NILL NEWSPRIGT M WPITING PAP COURUSATED BOX BOAPD CHLCRINE ALUMINA LOW DENS. P HI DENS. P ROLIVINYL C STRENE-BUT NYLCN STRENE-BUT	MO.05 SAW NILL MO.06 NEKSPRINT M MO.05 WPITING PAP MO.09 BOX BOAPD MO.10 CHLCRINE MO.11 ALWHINA MO.12 LOW DEMS. P MO.13 MI DEMS. P MO.15 STARENE-EUT MO.15 STARENE MO.17 STARENE MO.13 STARENE	SAW NILL NEWSPRIAT M WPITING PAP COPPUSATED BOX BOAPD CHCRINE ALUMINA LOW DENS. PO POLYVINYL C STARENE-EUT NYLON STARENE ETHYLENE PETPOLEUM R	SAW NILL NEWSPRIKT M WPITING PAP COUPUSATED BOX BOAPD CHLCRINE ALUMINA LOW DENS. P HI DENS. P HI DENS. P ROLIVINYL C STRENE-EUT NYLCN STRENE ETHYLENE ETHYLENE FTPOLEUM R	SAW FILL NEWSPRINT IN WOITING PAP COUPUGATED BOX BOAPD CHLORINE ALUMINA LOW DENS. P AI DENS. P AI DENS. P AI DENS. P AI DENS. P AI DENS. P TIRENE ETHILENE FIFOLEUM R TIFES	SAW FILL NEWSPRINT IN WPITING PAP CORNUSATED BOX BOAPD CHLORINE ALUMINA LOW DENS. PO POLIVINYL C STIRENE ETHYLENE ETHYLENE FETPOLEUM R TIFES INTEGRATED GRAY IFON F	SAW NILL REKSPAINT M WAITING PAP COTRUGATED BOX BOAPD CHLORINE ALUMINA LOW DENS. P RI DE	SAW FILL NEWSPRINT IN WOITING PAP COSNUGATED BOX BOAPD CHCRINE ALUMINA LOW DENS. P AL DE

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- COSEMLRATION TECHNOLOGY ALTERNATIVES STUDY - HATIOMAL SUBMARY

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NO.34 AOVANCED TECHNOLOGY, THERI	THERMICHICS, COAL DERIVED BOILER CRADE	DERIVED E	SOILER CRADE		15 ***	*** STRATEGY MATCH-T	1-H-1			
CATEGOPY	107AL   PUEL   SAVINJS   STU   10**12 BTU   FUEL   UTILITY FUEL SAVIHUS 10**12 STU	5 1500	AVINGS DOLLARS \$	CAPITAL COST \$300		PLARIT	ENISSIONS SAVINGS TONS PER YEAR PLANT UTILITY I	ā	S  TOTAL	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1	1	1	; ; ; ;
TOTAL ALL FILE ONLY	1980	5515		1304155	53799552	ea -6	18376576	76 5778359		24154928
COST SAVINGS CASES DALY	10.03	2731		1871937	40699728	ာတ	966593-			2151291
ENISSIONS SAVINGS CASE ONLY	0 !	1317		0 10		0	19592320			21531664
FULL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING	1663	0 0		18/1987	0	<b></b>	956999-	56 501/285 0 0		2151291
		HATI	HATIONAL FUEL S	SAVINGS SUTHERY	UTHARY					
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	F1	FUFL SAVINGS		10**12 BTU -	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	!			
CATEGORY	HAJUSAL PETROLFUH RETROLEUH GAS DISTILLATE COILER FUEL	PETROLFUN DISTILLATE	PETROLEUM COILER FUSL	6.45 0	COAL OERIVED DISTILLATE	POILER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL FUEL	
				!					1	;
SITE PLUS UTILITY										
T0141 All	147/13	434-	£032	0	0	-6466	11875	2197	13	990
FUEL SAVINGS CASES ONLY	27.7	50+ -	1700	0	c.	-0220	4:73	114	6	6961
COST SAVINGS CASES ORLY	16.87	0	1507	0	0	4964-	3: 65	48	<b>1</b>	1663
ENISSIONS SAVINGS CASE ONLY	12345	0	4378	0	0	0	7324	5002		0
FULL & COST SAVINGS CASES	1087	0	1207	0	3	†96 <del>†</del> -	36.05	48	16	1663
FUEL, COST & ENISSION SAVING	0	0	o	o	0	0	0	0		0
INCLUDING COAL FUEL CONVERSION										
1074L AIL	12345	0	4378	0	0	0	7928	2197	7	962
FUEL SAVINGS CASES CHLY	0	¢	0	0	0	0	762	114	S	70.
COST SAVINSS CASES CHLY	0	0	0	0	0	0	728	48	7	776
EMISSIONS STVINGS CASE CHLY	12345	0	4378	0	0	0	7324	2005		0
FUEL S COST SAVINGS CASES	0	0	0	0	0	c	728	48	7	776
FUEL, COST & EMISSION SAVING	0	0	9	0	0	0	0	0		0

10.00   1.00	CTAS GENEPAL SURMARY - FFOCESS LEVEL HO.35 ADVZEGED TECHNOLOGY,THER ALGINGS,COAL FOEL ENERSY TOTAL SAVENGS FUEL RATIO SAVIESS	MARY - FEOCES COGY, THE PATE FUEL EMERSI SAVINSS RATIO	- FROCESS LEVEL THER PUBLICS, COAL ENERSY TOTAL VINUS FUEL ATIO SAVINSS	DCP. B.G. UTILITY FUEL SAVINSS	B.G.(COTP.CONFIG.) TY COST SAVIN- IL COLL. 135 RATIO \$000	RFIG.) SAVINGS COLLARS \$000	*** STRA CAPITAL COS7 \$000	** STRATEGY MATCH-T ITAL ENISSIONS OS; SAVINGS - 000 RATIO P	LANT	EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	INGS TOTAL	01 ECS SIZE (FA)
1.00   1.00	HO.01 REAT PACKING	0.209	28.7	80.8	-0.392	5271	1937849	0.386		86438	47730	7.29
1   1   1   1   1   1   1   1   1   1	HO.02 EARTHS	0.002			.31	-44677	305457	0.134	-6840	1956	3127	0.08*
1	HO.03 HALT BEVEPAGE	0.141	16.7	60.2	-0.487	5824	1000767	0.322	-36632	70862	34230	3.74
1,000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.0000   0.	toing koven Fassic Mill	600.0-	-1.0	6.1	-0.063	-26869	ÇJ	600.0	-5525	64,98	973	0.14*
1,		0000.0	0.0	7.16	000.0	0	0	0.000	14469	98163	112632	00.0
1.   1.   1.   1.   1.   1.   1.   1.	HO.06 REWSPZINT MILL	0.179		84.1	-0.025	-10710	771034		68875-	83595	43706	69.19
1.0   1.0	HO.67 WRITHS PAPER MILL	0.252	33.7		0'0'0-	-5060	1034830	7.	-41264	102312	61048	23.87
Declaration   Declaration	HO.03 CORRUGATED PAPER	0.286	9	539.2	-0.083	-156298	4314926	0.451	-219564	573617	354052	76.76
0.195	HOLDY EOX EOAPD	0.285	66.0	148.8	-0.035	-20391	1343591	.45	-60577	162251	97214	75.65
5. POLYETHYL 0.071 12.4 6.77 -0.0459 1202025 1205042 0.336 -60000 1406499 1.0 12.4 6.77 -0.0459 1.0 1202 1.0 12.4 6.77 -0.0459 1.0 1202 1.0 12.4 6.77 -0.0459 1.0 1202 1.0 12.4 6.77 -0.0459 1.0 1202 1.0 12.4 6.77 -0.0451 1.0 1309561 0.371 -940460 1.2 1102504 1.0 12.4 6.2 1.0 12.	HO.10 CHLORINE	0.195	30	374.3	.01	43034	3754162	0.333	-182236	405597	223361	32 53
G. DOLYETHYL         0.071         12.4         0.71         -0.081         -51782         659612         0.161         -64046         724.73           F. DOLYETHYL         0.156         11.04         6.015         1.21         -42405         700561         0.316         -3349         64036           F. DOLYETHYL         0.156         11.04         -0.277         -117171         1309561         0.357         -62916         116256           FULCHLOBIDE         0.151         25.73         -0.277         -117171         1309561         0.357         -62916         116256           FULCHLOBIDE         0.152         0.270         -0.251         -25645         373169         0.352         -16314         31415           FULCHLOBIDE         0.162         0.200         0.700         -0.251         -25645         373169         0.352         -16314         31415           FULCH         0.000         0.00         0.000         0.000         0.000         0.000         10452         0.000         0.000         0.000         13656         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000	HO.11 ALUMINA	0.130	28.2	38.	-0,459	-202925	1285842	0.336	-80800	148499	66929	66.13
FUT. PULPETHITL.  1. 15.5  1.	LOW DENS.	0.071	12.4	67.7	.08	-51782	859612	. 18	-40460	72473	32013	8.03
LEUT. PUB.         0.151         22.7         103.7         -117171         1309561         0.367         -62916         11626         11626           PUT. PUB.         0.14.3         6.5         29.3         -0.727         -117171         1309561         0.367         -1631         11415           PUT. PUB.         0.14.3         6.5         29.3         -0.727         -26731         273759         0.252         -16316         19155           PUT. PUB.         0.000         0.0         17.0         0.000         0.000         104155         7526           PUT. PUB.         0.000         0.0         0.000         0.000         0.000         104155         7523           PUT. PUB.         0.000         0.000         0.000         0.000         760461         15626           PUT. PUB.         0.000         0.000         0.000         0.000         760491         15626           PUT. PUB.         0.000         0.000         0.000         4.57.4         0.000         0.000         4.45.66         15626           PUT. PUB.         0.150         0.000         4.57.4         0.003         2.5864         0.306         4.45.76         2.5114         2.5114         2.	HI DENS.	0.150	\$2.9	59.8	-0.151	-42405	708581	.37	-34349	92059	29687	10.01
FULT. PUGG. 0.143 6.55 6.73 6.0.770 -55645 373169 0.352 -16331 31415   0.022 0.032 0.09 17.0 6.0251 -26731 273759 0.242 -12356 19135   E	ROLIA FOLYVINIL CHLORIDE	0.151	~	103.7	-0.277	-117171		•	291	116296	53380	9.51
Color   Colo	STYPUME-PUT.	0.143			-0.770	-55645	373169	0.352	-16331	31415	14585	10.75
Color   Colo	KO.16 MILCY	0.032		7	-0.251	267		0.242	-12356	19135	6179	3.41
FTHHLERE         0.000         0.000         780461         1652           PETHHLERE         0.000         0.000         2670494         313958         2           THRES         0.000         0.000         2670494         313958         2           THRES         0.169         33.4         144.4         -0.502         -227600         1971242         0.382         -60991         154505         2           THRES         0.169         35.4         144.4         -0.502         -227600         1971242         0.382         -60991         154505         2           THRES         0.169         467.4         0.003         -22660         1971242         0.382         -51814         4           COPPER         0.129         20.0         67.4         -0.053         -269703         2414684         0.375         -117213         220078           COPPER         0.162         46.0         205.7         -0.493         -269703         2214155         0.396         -117213         260791         10           ALL         770         357         -0.507         -1941412         28503280         -1122136         2607991         10           ALL         770 </td <td>NO.17 STYRENE</td> <td>0.000</td> <td>0.0</td> <td>7.</td> <td>00000</td> <td>0</td> <td>0</td> <td>0.000</td> <td>104155</td> <td>7532</td> <td>111687</td> <td>00.0</td>	NO.17 STYRENE	0.000	0.0	7.	00000	0	0	0.000	104155	7532	111687	00.0
PETPOLEUM REFINING         0.000         0.000         293.3         0.000         293.3         0.000         293.3         0.000         293.3         144.4         -0.502         -227600         1971242         0.382         -60991         154505         154505           INHEGRATED STEEL         0.000         467.4         0.003         -22684         0.000         4342768         521614         4           GDAY IROH FOUNDRY         0.129         20.0         67.4         -0.053         -28684         816237         0.265         -36154         72071           COPPER         0.162         46.0         205.7         -0.493         -2869703         2418844         0.375         -117213         220078           MOTOR VEHICLE         0.164         57.1         233.2         -0.509         -385840         3214155         0.30         -117213         250078		0.000	0.0	16.2	0.000	0	0	0.000	780461	16628	797088	00.0
TIMES         0.169         33.4         144.4         -0.562         -227600         1971242         0.382         -60991         154505           IMHEGRATED SITEL         0.000         467.4         0.003         -227600         0.000         4342768         521814         4           CDRAY IRON FOUNDRY         0.129         20.0         67.4         -0.053         -29684         816237         0.265         -36154         72071           COPPER         0.162         46.0         205.7         -0.493         -289703         2416844         0.375         -117213         220078           MOTORY VEHICLE         0.164         57.1         233.2         -0.699         -385840         3214155         0.390         -128959         249717	RO.19 PETPULEUM REFIMING	0.000		93.	000.0	0	0	. 00	5670484	313958	2984452	00.0
COPPER         COPPER<		0.169	33.4	744.4	. 5ი	-227600	9712	0.382	16609-	154505	73514	15.97
COPPER         67.4         -0.053         -29684         B16237         0.265         -36154         72071           COPPER         0.162         46.0         205.7         -0.493         -289703         2418844         0.375         -117213         220078           MOTOR VEHICLE         0.164         57.1         233.2         -0.509         -385840         3214155         0.390         -128959         249717           ALL         77         3359         -1934412         28503280         -1241737         264530         10           5AVIN3S CASES CHLY         130         374         43034         3754162         -182236         405597         10           10MS SAVINSS CASES CHLY         0         0         0         0         0         7912346         956095         8           10MS SAVINSS CASES CHLY         0         0         0         0         0         7912346         956095         8           10MS SAVINSS CASES CHLY         0         0         0         0         0         7912346         956095         8           10MS SAVINSS CASES         0         0         0         0         0         0         162236         405597         9	HO.23 INTEGRATED STEEL	0.000	0.0		0.003	0	0	000.0	34276	521814	4864582	00.0
COPPER   COPPER   COLOR   CO		0.129	20.0	67.4	-0.053	-29684	816237	0.265	-36154	72071	35917	13.63
0.164 57.1 233.2 -0.509 -385840 3214155 0.390 -128959 249717 770 3359 -1931412 28503280 6665081 3607991 10 777 2457 -1904543 28278832 -1241737 2643399 1 130 374 43034 3754162 7912346 956095 8 130 374 43034 3754162 -182236 405597 0 0 0 0 0 0 0 0		0.162	46.0	05.	-0.493	-289703	2416844	.37	-117213	220078	102865	12.61
776     3359     -1931412     28503280     6665081     3607991     1       777     2457     -1904543     28278832     -1241737     2643399       130     374     43054     5754162     -182236     405597       0     036     0     7912346     956095       130     374     43034     3754162     -182236     405597       0     0     0     0     0     0	HO.26 MOTOR VEHICLE	0.164	P 1	233.2	-0.509	-385840	3214155	0.390	-128959	249717	120759	23.19
	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CHLY EMISSIONS SAVINGS CASE ONLY FUEL A COST SAVINGS CASES FUELLCOST & EMISSION SAVING		777 777 130 0 130	3359 2457 374 374 374 374		-1931412 -1904543 43054 63034	850328 827883 575416 375416		6665031 -1241737 -182236 7912346 -182236	3607991 2643399 2643399 405597 405597	14 14 18 18 18 18	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIOFAL SUBMERY

CATECOT HOLD UTILITY CGS SAVINGS CATECOT FOLL SAVINGS CATECOT FOLLOWS GOOD FOLLOWS FOR FIRST PRINCIPLY CATECOT WITH STANDARD CATECOT WAS SAVINGS CATEGORY SAVIN	TERR : 1990 1.3.35 ADVINCED TECHNOLOGY, THERMICHICS, COAL DER. B.G. (COMP.COMFIG.)	HEHICS, COAL E	JER. B.G.(	CONP. CONFIG. )		*** ST	*** STRATEGY MATCH-T	TCH-T			07
3333 12331			JTILITY FUEL SAVINGS 10**12 BTU	s reco	so.	APITAL COST \$000		PLANT	MISSIONS TONS PER UTILI	5	
1333   1235    -6927359   114557024   14215725   13421310   2293   -6975359   114126600   -5566001   11469515   6295024   1949515   6295024   1949515   6295024   1949515   6295024   1949515   6295024   1949515   6295024   1949515   6295024   1949515   6295024   1949515   6295024   1949515   6295024   1949515   1949514   19	1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	!	1 1 1	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1			:
1946016   1946		1111	12351	269-	27353	11455702	<b>J</b>	142157			0+0
1939   1939	<b>&gt;</b>	\$11.00 E	10533	-687	76356	11412660	0	-53660	=	•	502
1939349   1939	<b>&gt;</b>	293	243	7	96517	509558	в	5605-			513
HATICHAR FUEL SAVINGS SUPPLIES FOLIER	CHILY	0	1617	,	0		0	19592			£64
HATIOHAL FUEL SAVINGS SUFFMARY	SES WINS	5 5 5 7 7	7.7 5.0	r	0	000179	<b>0</b>	6604-			0
HATURAL FERROLEUM PETROLEUM COAL DERIVED GAS DISTILLATE EDILER COAL DEFINED FOLE FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL SAVINGS FUEL FUEL SAVINGS FUEL			HATIO	HAL FUEL SAVI	INS SUI	MARY					
14763		,	OLEUH	, ,	90	.2 BTU - DERIVED	03-1100	1400	OTHE	TOTAL	
14753 -425 6032 0 0 -12159 18921 2197 2405 -425 1637 0 0 -12093 11573 168 154 0 47 0 0 -12093 11573 168 154 0 4373 0 0 0 7324 2005 17ERSION 12345 0 4578 0 0 6841 2197 0 0 0 0 6841 2197 0 0 0 0 0 0 0 -41 0 12345 0 4578 0 0 0 0 -41 0 15345 0 0 0 0 0 0 -41 0 15345 0 0 0 0 0 0 -41 0 15345 0 0 0 0 0 0 -41 0 15345 0 0 0 0 0 0 -41 0 15345 0 0 0 0 0 0 0 -41 0 15345 0 0 0 0 0 0 0 0 -41 0 15345 0 0 0 0 0 0 0 0 0 0 0 185 0 0 0 0 0 0 0 0 0 0 185 0 0 0 0 0 0 0 0 0 0 0 185 0 0 0 0 0 0 0 0 0 0 0 0 185 0 0 0 0 0 0 0 0 0 0 0 0 0 185 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 185 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							FUEL	FUEL	SAVINGS		
14753	!	; ; ; ; ; ; ;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	† 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	; ; ;	!	1	; ; ; ; ; ;	# 	1 4 5 6 1 1	
2405 -425 1637 0 0 -12093 11573 168 3 154 0 47 0 0 -931 1073 0 154 0 4373 0 0 0 7324 2005 1157 10245 0 4373 0 0 0 0 7324 2005 1157 0 0 0 0 0 0 0 0 0 0 12345 0 4378 0 0 6841 2197 - 12345 0 4378 0 0 0 0 0 0 0 0 0 12345 0 4378 0 0 0 0 0 0 0 0 0 158 0 0 0 0 0 0 0 0 0 0 0 0 158 0 0 0 0 0 0 0 0 0 0 0 0 0 1724 2005 163 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		14758	-425	6032	0	0	-12159	18921	2197	3333	
NILY 123-45 0 4370 0 0 -931 1073 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	>-	2405	<b>ទីបីង</b> -	1637	0	0	-12093	11573	163	3334	
ONLY 123-5 0 4373 0 0 0 7324 2005  S	<b>&gt;</b> -	104	0	47	0	0	-931	1073	0	293	
71H3 107 0 47 0 0 -931 1073 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CHLY	123.5	0	4373	0	0	0	7324	2002	0	
FYERSION 12345 0 4378 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SES	10+	0	47	0	٥	-931	1073	0	293	
FYERSION 12345 0 4378 0 0 0 6841 2197 2197 0 0 0 0 6841 2197 0 0 0 0 0 0 0 6841 2197 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AVING	0	0	0	0	0	0	0	0	0	
12345 0 4378 0 0 0 6841 2197 0 0 0 0 -465 163 0 0 0 0 0 -465 163 0 12345 0 4378 0 0 0 7324 2005 0 0 0 0 -41 0	CHYERSION								,	,	
0 0 0 0 -465 163 0 0 0 0 0 -465 163 0 0 0 0 0 -41 0 0 0 0 0 -41 0 0 0 0 0 0 -41 0 0 0 0 0 0 -41 0 0 0 0 0 0 -41 0 0 0 0 0 0 0 0 0 0		12345	0	4378	0	0	0	6841	2197	-292	
0 0 0 0 0 0 -41 0 -4 21 12345 0 4578 0 0 0 7324 2005 55 0 0 0 0 0 0 -41 0 -4 711/G 0 0 0 0 0 0 0 0	,-<	0	0	0	0	0	0	-465	163	-277	
23	<b>≻</b> ,	0	0	0	0	0	0	-41	0	-41	
	CHLY	12345	0	4378	0	0	0	7324	2005	0	
	SES	9	0	0	0	0	o	-41	0	-41	
	SAVING	၁	0	0	0	0	0	•	o	c	

## TABLE VI-5 SUMMARY RESULTS OPTIMUM MATCH STRATEGY

OCE H T RSY S
SAVINGS SAVINGS
-
0.051 2.0 4.1
0.155 11.8 24.1
0.638 0.9 2.9
0.161 13.1 3.6
0.048 5.7 13.8
0.113 12.6 25.6
0.200 101.0 192.9
0.175 27.2 52.6
0.070 46.8 37.7
-0.050 -5.5 5.2
0.001 0.2 5.6
0.012 0.9 2.1
0.013 1.5 2.8
0.065 1.2 2.2
0.014 0.4 0.8
0.099 22.3 46.1
0.028 32.9 21.6
0.028 115.1 74.3
0.020 2.2 4.2
-0.001 -6.4 21.2
0.003 1.2 2.6
0.020 3.3 6.1
0.018 3.7 6.9
and w

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- COSEMERATION TECHNOLOGY ALTERNATIVES STUDY - HATIGNAL SURFIARY

YEAR : 1990

NO. 1 COMPERT PERMINDED 1931EA	SOLEMI JURDINESOLO POIMIENITIEL. D.O	D POLATEA	1,1721.	•	E C	DITIO IOTIVALE XXX	5			
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 B1	1502	SAVINGS DOLLARS \$000	CAPITAL COST \$000		E PLANT	EMISSIOMS SAVINGS TONS PER YEAR - PLANT UTILITY T	SAVING YEAR ITY	S  TOTAL
	1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	}		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					1
TOTAL INTO	. 0	3000		1.72.721	15017626		-979494		2481917	1702253
FUEL SAVINGS CASES ONLY	1521			1690957	29066272		-876742		2580279	1703548
A SHOULD DOWN TO A SHOULD A SHOULD BE SHOULD B	י ני ני ני ני			2110306	15107706		-550371		1861662	1411291
ENTESTONS SAVINGS CASE ONLY	010			1003016	3175/66		A 1. C. C. C.		90772	122662
EIEL & COST SAVINGS CASES	וני פיני פיני	2		201015	15197726		55017	8	1861662	1311201
FUEL, COST & ENISSION SAVING	0.51			355903	3179666		231	•	99272	122462
		NAT1	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS 5	UHITARY					
	HATURAL P	FL ETFOLEUM	FUEL SAVINGS PETFOLEUM PETROLEUM	! !	10**12 BTU		1		TOTAL	
CATEGOPY	G 245	DISTILLATE	BOILER FUEL	GAS		EOILER FUEL	COAL	OTHER SAVINGS	FUEL	
SITE PLUS HILLITY	1 1 1 1 1 1 1 1 2				1 1 1 1 1 1 4 2	!				!
114 17101	14654	100	-16165	٥	0	a	1240	2197	=	501
FUEL SAVINGS CASES ONLY	12765	-17	-16579	•	0	0	3856	1545	=	571
COST SAVINGS CASES CHLY	1260	0	-2051	0	0	0	2513	13	•	35
ENISSIONS SAVINGS CASE CHLY	119	0	-318	0	0	0	325	13		05
FUEL & COST SAVINGS CASES	1260	0	-2651	0	0	0	2513	13	•	935
FUEL, COST & ENISSION SAVING	119	0	-318	0	0	•	325	13		40
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14654	-425	-16165	0	0	0	1240	2197	Ξ	501
FUEL SAVINGS CASES CHLY	12765	-17	-16579	0	0	0	3556	1545	=	1571
COST SAVINGS CASES CHUY	1200	0	-2651	0	0	0	2513	13		935
EMISSICHS SAVINGS CASE ONLY	119	0	-318	0	0	0	325	13		140
FUEL & COST SAVINGS CASES	1260	0	-2851	0	0	0	2513	13	•	935
FUEL, COST & ENISSION SAVING	113	0	-318	0	0	0	325	13		40

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	CTAS GENERAL SUNNARY - PROC CURRENT TECHNOLOGY,STEAN FUEL ENERC	- PROC STEAN ENERG	ESS LEVEL TURBINE,615 Y TOTAL (	PSIA(EXI),COAL UTILITY COS	),COAL	SAVINGS	*** STR	*** STRATEGY OPTIMUM PITAL EHISSIOHS		EHISSIONS SAVINGS	INGS	01 ECS
0.0079         0.03         25.0         -0.050         -19497         1456741         -0.075           0.015         1.4         4.0         -0.115         -16459         256067         -0.045           0.0107         8.2         2.4         -0.015         -16294         960124         -0.015           0.02         1.2         2.4         0.026         16294         960124         -0.015           0.015         2.2         -0.001         -329         4930803         0.002           0.025         3.2         13.2         4930803         0.003           0.027         3.2         13.2         4930803         0.003           0.027         3.2         13.6         0.013         493080         0.003           0.027         2.5         0.013         51878         313693         0.013           0.027         2.5         0.013         11404791         0.003           0.028         0.039         115403         10.033           0.029         0.035         114603         10.033           0.029         0.035         14450         10.045           0.029         0.035         14450         0.024	•	SAVINGS RATIO		FUEL	•	DOLLARS \$000	\$000 \$000	SAVINGS RATIO		TONS PER YEAR UTILITY	TOTAL	SIZE (FIM)
0.015         11.4         4.0         -0.115         -16459         256067         -0.045           0.017         8.2         6.062         16294         990124         -0.103           0.007         -0.0         2.4         0.062         409699         -0.023           0.0153         17.2         3.1         -0.757         -387438         4930083         -0.023           0.027         3.2         13.6         0.075         32751         315697         -0.022           0.027         3.2         13.6         0.075         32751         315697         -0.022           0.027         3.2         13.6         0.075         32751         315697         -0.042           0.054         5.0         0.13         64604         4930083         -0.042           0.055         21.2         0.156         317697         -0.093           0.056         25.2         0.091         25599         145307         -0.013           0.007         20.0         20.0         20.0         20.0         20.0         20.0           0.007         20.0         20.0         20.0         20.0         20.0         20.0           0.007		620.0		5.	0	-19497	1456741	-0.077	-34376	27576	-6800	2.45
0.0107         0.02         16294         960124        103           0.0107         -0.2         -0.001         -329         409690         -0.023           0.0153         17.2         -0.01         -329         409690         -0.023           0.0153         17.2         3.1         -0.757         -39743         4930083         0.093           0.0254         5.0         13.6         0.035         538789         3170897         -0.093           0.0564         5.0         20.13         6.035         538789         3170897         -0.093           0.0564         5.0         0.115         6.0404         6.036         0.039         145327         0.093           0.0564         5.0         0.113         6.0404         317649         0.013         0.093           0.0566         1.0         0.035         115403         14150         0.003           0.0067         2.0         0.035         14150         36056         0.003           0.007         2.0         0.035         144504         1814905         0.003           0.007         0.043         0.045         5522032         0.043           0.007         0.044 <td></td> <td>0.035</td> <td>1.4</td> <td>4.0</td> <td>Ξ.</td> <td>-16459</td> <td>256067</td> <td>-0.045</td> <td>-5297</td> <td>4253</td> <td>-1045</td> <td>*50.0</td>		0.035	1.4	4.0	Ξ.	-16459	256067	-0.045	-5297	4253	-1045	*50.0
0.0103         -0.0         -130         -0.0         -0.0           0.0153         17.2         -0.0 <t< td=""><td></td><td>0.107</td><td>8.2</td><td>24.6</td><td>0.062</td><td>16294</td><td>980124</td><td>-0.103</td><td>-32654</td><td>26332</td><td>-6322</td><td>1.46</td></t<>		0.107	8.2	24.6	0.062	16294	980124	-0.103	-32654	26332	-6322	1.46
0.052         31.1         -0.757         -397436         4930063         0.099           0.052         31.6         0.075         32751         315697         -0.042           0.054         3.2         0.035         0.035         -0.099         -0.098           0.013         6.0         0.132         64604         825026         -0.098           0.105         25.4         0.132         64604         825026         -0.098           0.136         25.2         0.132         64604         825026         -0.098           0.136         25.2         0.135         11409         -0.098         -0.098           0.056         35.5         0.035         115403         141781         -0.018           0.007         0.037         11645         0.021         0.021         0.021           0.007         0.049         2163         0.021         0.021         0.021           0.007         0.049         0.048         0.048         0.021         0.021           0.007         0.049         0.048         0.0465         0.021         0.021           0.007         0.049         0.048         0.04645         0.047         0.047		-0.007	-0.9	2.8	-0.001	-329	069605	. 02	-5392	3030	-2362	0.07*
0.05         3.2         13.6         0.075         3251         13.6997         0.042           0.054         5.0         25.4         0.132         64604         625026         0.093           0.136         5.0         25.4         0.132         64604         625026         0.093           0.150         23.2         21.8         0.16         91751         1041781         0.093           0.054         35.2         21.8         0.16         91751         1041781         0.093           0.054         35.2         21.8         0.103         25595         1453279         0.003           0.070         -0.7         5.9         0.035         15403         313693         0.013           0.080         -0.7         5.9         0.035         10406         0.013         0.013           0.095         -0.09         2.2         0.076         26864         402015         0.023           0.095         -0.1         0.049         4150         964651         0.013           0.007         -0.1         0.049         14364         144306         0.049           0.008         -0.1         0.049         144364         144406		0.153		3.1	0.75		4930083	0.099	7896	3277	11173	0.01*
0.054         5.0         25.4         0.132         64604         825028         0.098           0.136         69.0         201.3         0.237         538789         3170897         0.083         -2.2           0.155         23.2         21.8         0.16         91751         104781         -0.083         -2.2           0.054         23.2         36.5         0.091         225995         1453279         0.003         -0.18           0.070         -6.7         5.9         0.035         15403         313693         -0.118         -0.018           0.070         -6.7         5.9         0.035         15403         313693         -0.118         -0.021           0.000         -0.4         2.0         0.037         10465         23462         -0.021           0.010         -0.1         2.7         0.049         2683         402015         -0.027           0.02         -0.1         0.03         144364         1814905         -0.069           0.03         -0.1         0.03         144364         1814905         -0.069           0.03         -1.4         2.0         0.05         144364         1814905         -0.069		0.027		13.6	.0.	32751	336997	-0.042	-19266	14362	7065-	10.53
0.136         69.0         201.3         6.237         539769         3170697         -0.083         -0.150           0.150         23.2         21.8         0.160         91751         1041781         -0.036           0.054         25.2         36.5         0.091         225995         1453279         0.003           0.070         -6.7         5.9         0.035         15403         313693         -0.118           0.009         -1.5         5.9         0.035         16463         23696         10.031           0.009         -1.5         5.9         0.035         10465         239461         -0.018           0.009         -1.1         2.7         0.049         20864         402015         -0.021           0.025         -0.1         2.0         0.037         10465         239461         -0.023           0.026         -0.1         2.0         0.049         26864         402015         -0.027           0.027         0.049         20864         402015         -0.027         -0.049           0.027         0.049         20864         402015         -0.027           0.027         0.143         4150         80569		0.054		2	0.132	÷0959	825028	0	-43515	31997	-11518	7.92
0.054         23.2         21.8         0.160         91751         1041701         -0.036           0.054         35.2         36.5         0.091         225995         1453279         0.003           0.070         -6.7         36.5         0.035         15403         313693         -0.116           0.009         -1.5         5.4         0.003         5176         36036.2         -0.021           0.009         -1.5         5.4         0.003         5176         36036.2         -0.021           0.009         -0.4         2.0         0.037         10465         239461         -0.023           0.025         0.2         0.049         20664         402015         -0.023           0.026         0.037         10466         402015         -0.023           0.037         0.049         20664         402016         -0.023           0.037         0.049         20653         142802         -0.049           0.038         0.043         0.0443         4150         60653         -0.049           0.039         -1443614         1814905         -0.043         -0.041           0.049         0.243         16422         -0.041		0.136	69.0	201.3	0.237	538789	3170897	-0.083	-249659	214150	-35510	45.35
0.003         15.2         36.5         0.091         225995         1453279         0.003           0.070         -0.75         0.035         15403         313693         -0.118           0.009         -1.5         5.9         0.035         10465         350362         -0.021           0.009         -1.5         5.9         0.037         10465         239461         -0.023           0.005         2.0         0.037         10465         239461         -0.023           0.005         2.0         0.037         10465         239461         -0.023           0.005         2.0         0.076         5403         142802         -0.069           0.005         2.0         0.076         5403         -0.069         -0.069           0.007         0.039         4150         80568         -0.069         -0.069           0.007         0.041         10964         41869         -0.069         -0.069           0.008         0.161         116132         354402         -0.019         -0.019           0.009         -14.4         0.049         0.049         10436         -0.043         -0.043           0.009         -14.9		0.150	~		0.160	91751	1041781	-0.038	-28293	23144	-5149	13.37
-0.078         -6.7         5.9         0.035         15403         313693         -0.118           -0.009         -1.5         5.4         0.003         5176         360362         -0.021           -0.006         -0.4         2.0         0.037         10465         239461         -0.023           -0.010         -1.1         2.7         0.049         20884         402015         -0.027           -0.025         0.5         2.2         0.076         5483         142802         -0.069           -0.026         0.5         0.076         5483         142802         -0.069           -0.027         0.049         20864         4150         80686         -0.027           -0.037         0.049         4150         80686         -0.027         -0.069           -0.039         8.4         44.3         0.161         109164         964651         -0.112           -0.009         -14.6         77.3         0.340         5015976         5522032         -0.043           -0.001         -1.6         77.3         0.340         19642         10746         10643         10643         10643         10643         10643         10643         10644		0.054	36.2		0.091	225995	1453279		-37425	39539	2114	3.31
-0.006         5.4         0.006         5176         360362         -0.021           -0.006         -0.4         2.0         0.037         10465         239461         -0.023           -0.010         -1.1         2.7         0.049         20864         402015         -0.027           -0.010         -1.1         2.7         0.049         20864         402015         -0.027           -0.025         0.05         2.2         0.076         5483         142802         -0.027           -0.004         -0.1         0.0         0.036         4150         8056         -0.020           -0.005         -0.1         0.0         0.161         109164         964651         -0.017           -0.007         -1.4         20.6         0.356         1443614         1814905         -0.043           -0.007         -1.4         20.8         0.340         5015976         5129402         -0.043           -0.008         -1.4         0.049         36462         -0.043         -0.044           -0.011         -1.1         -1.1         -1.1         -1.1         -1.1         -1.1         -1.1         -1.1         -1.1         -1.1         -1.1		-0.078	-8.7		0.035	15403	313693	-0.118	-16649	9089	-10343	2.79
-0.06         -0.46         2.0         0.037         10465         2139461         -0.023           -0.010         -1.1         2.7         0.049         20884         402015         -0.027           -0.015         0.05         2.2         0.076         5483         142802         -0.067           -0.004         -0.1         0.08         0.036         4150         89058         -0.020           -0.003         -0.1         0.08         0.036         1443614         1814905         -0.020           -0.004         -14.6         20.8         0.356         1443614         1814905         -0.043           -0.004         -14.6         20.8         0.340         5015976         5222032         -0.041           -0.004         -14.6         77.3         0.340         5015976         522032         -0.041           -0.007         -14.6         20.3         -0.011         -116132         3544022         -0.031           -0.010         -1.4         20.3         -0.017         -116132         3544022         -0.043           -0.010         -1.4         6.0         0.052         36.91         772659         -0.039           -132		-0.009	-1.5	5.4	0.003	5176	360362	-0.021	-9555	5768	-3767	19.0
0.025         0.049         20684         402015         -0.027           0.025         0.5         2.2         0.076         5483         142802         -0.069           -0.004         0.5         0.076         5483         142802         -0.069         -0.069           -0.004         -0.1         0.8         0.039         4150         89058         -0.020           -0.007         8.4         44.3         0.161         109164         964651         -0.0112         -0           -0.009         -1.4         20.8         0.356         1443614         1814905         -0.043         -5           -0.009         -14.6         77.3         0.340         5015976         5522032         -0.043         -2           -0.010         -1.2         4.1         0.049         19896         612904         -0.043         -2           -0.010         -1.4         20.3         -0.011         -116132         3544025         -0.041         -1           -0.011         -1.7         6.0         0.052         36491         772659         -0.061         -1           -0.011         -1.7         6.0         0.066         4435         35606		-0.006	5.0-		0.037	10465	239461	-0.023	-3828	2113	-1715	0.35*
0.025         0.05         5483         142802         -0.069           -0.004         -0.1         0.8         0.039         4150         89058         -0.020           -0.007         8.4         44.3         0.161         109164         964651         -0.012           -0.001         -1.4         20.8         0.356         1443614         1814905         -0.043         -0.011           -0.004         -14.6         77.3         0.340         5015976         5522032         -0.041         -2.041           -0.001         -1.2         4.1         0.049         19896         612904         -0.041         -2.041           -0.001         -1.2         4.1         0.049         19896         612904         -0.041         -2.041           -0.003         -14.4         20.3         -0.011         -118132         3546022         -0.041		-0.010	-1.1			20884	0201	-0.027	-5790	2876	-2914	0.24*
-0.004         -0.1         0.8         4150         49958         -0.020           0.037         8.4         44.3         0.161         109164         964651         -0.112           -0.001         -1.4         20.8         0.356         1443614         1814905         -0.043           -0.004         -14.6         77.3         0.340         5015976         5522032         -0.041         -2.0           -0.004         -1.2         4.1         0.069         19896         612904         -0.041         -2.0           -0.001         -1.2         4.1         0.069         19896         612904         -0.041         -2.0           -0.003         -14.4         20.3         -0.011         -118132         3544022         -0.041            -0.010         -1.6         2.0         0.173         96422         187465         -0.027           -0.011         -1.7         6.0         0.062         36691         772659         -0.042         -0.027           -0.011         -1.8         6.0         0.062         36691         772659         -0.039         -0.037           -0.012         -1.8         6.0         0.066         4435		0.025	0.5	2.2	9:0.0	5483	142802	9	-3322	2324	666-	0.83
0.037         8.4         44.3         0.161         109164         964651         -0.112         -6.0           -0.001         -1.4         20.8         0.356         1443614         1814905         -0.043         -5           -0.004         -14.6         77.3         0.340         5015976         5522032         -0.041         -20           -0.001         -1.2         4.1         0.049         19696         612904         -0.038         -           -0.001         -1.2         4.1         0.049         19696         612904         -0.039         -           -0.003         -1.4         20.3         -0.011         -116132         3544022         -0.039         -           -0.010         -1.6         2.6         0.173         96422         187465         -0.042         -1           -0.01         -1.6         6.0         0.062         36691         772659         -0.042         -1           -0.009         -1.8         6.0         0.006         4435         13766543         -0.039         -1           -1.8         403         7755441         20166096         -0.039         -51           -1.5         370         -237433<		-0.004	-0.1	0.8		4150	89058	9	-1372	821	-551	0.15*
-0.001         -1.4         20.8         0.356         1443614         1814905         -0.043         -20.6           -0.004         -14.6         77.3         0.340         5015976         5522032         -0.041         -20           -0.011         -11.2         4.1         0.049         19896         612904         -0.033         -           -0.003         -14.4         20.3         -0.011         -118132         3544022         -0.001         -2           -0.010         -1.6         2.6         0.173         96422         187465         -0.027         -           -0.011         -1.7         6.0         0.062         36691         772659         -0.042         -1           -0.009         -1.8         6.0         0.062         36691         772659         -0.042         -1           -0.009         -1.8         6.0         0.062         4435         30766683         -0.039         -1           -1.2         560         -1.8         7757641         20166096         -51         -51           -1.2         403         -1.2         -1.2         -1.2         -1.2         -1.2           -1.2         403         -1.2		0.037	8.4	44.3	0.161	109164	159596	-0.112	-64337	47426	-16911	20.02
-0.004 -14.6 77.3 0.340 5015976 5552032 -0.041 -20 -0.011 -1.2 4.1 0.049 19896 612904 -0.039 -0.003 -14.4 20.3 -0.011 -118132 3544022 -0.001 -2 -0.010 -1.6 2.6 0.173 96422 187465 -0.027 -1 -0.011 -1.7 6.0 0.062 36691 772659 -0.042 -1 -0.009 -1.8 6.9 0.006 4435 936016 -0.039 -1 -1.2 403 7755741 2016696 -91 -1.3 569 7755741 2016696 -91 -1.4 7755741 2016696 -91 -1.5 370 -337439 4930083 -47		-0.001	-1.4	20.8	0.356	1443614	1814905	-0.043	-55678	21385	-34293	3.30
-0.003 -14.4 20.3 -0.011 -118132 3544022 -0.003 -2 -0.003 -14.4 20.3 -0.011 -118132 3544022 -0.001 -2 -0.010 -1.6 2.6 0.173 96422 187465 -0.027 -1 -0.011 -1.7 6.0 0.062 36691 772659 -0.042 -1 -0.009 -1.8 6.9 0.006 4435 936016 -0.039 -1 -1.8 560 7216034 30762638 -58 -121 560 7755941 20166096 -91 -132 560 7755941 20166096 -91 -133 155 370 1054831 6915557 -47		-0.004	-14.6	77.3	0.340	5015976	5522032	-0.041	-206206	82726	-123480	5.09
-0.003 -14.4 20.3 -0.011 -116132 3544022 -0.001 -2 -0.010 -1.6 2.6 0.173 96422 187465 -0.027 -0.001 -0.011 -1.7 6.0 0.062 36691 772659 -0.042 -1 -0.009 -1.8 6.9 0.006 4435 936016 -0.039 -1 132 560 7216034 30762638 -88 152 403 7557541 20166096 -91 17 504 3 -337438 4930083 155 370 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		-0.011	-1.2	4.1	.04	19896	612904	-0.038	++08-	4361	-3684	<b>0.47</b> *
-0.010 -1.6 2.6 0.173 96422 187465 -0.027 -1.0 0.062 36691 772659 -0.042 -1.0 0.062 36691 772659 -0.042 -1.0 0.006 4435 936016 -0.039 -1.0 0.006 132 560 7216094 30762638 -89 152 403 7757941 20166996 -51 121 504 7757941 20166996 151 175 3 155 370 105.4831 6915557 -47		-0.003	-14.4	20.3	-0.011	-118132	3544022	-0.001	-25841	21695	-4145	3.60
-0.001 -1.7 6.0 0.062 36691 772659 -0.042 -1  -0.009 -1.8 6.9 0.006 4435 936016 -0.039 -1  132 560 7216034 30762638 -89  152 403 7755941 20166096 -91  173 3 -337433 4930083  155 370 1054631 6915557 -47		-0.010	-1.6	2.6	0.173	96422	187465	-0.027	-6423	2796	-3627	<b>0.57</b> *
-0.009 -1.8 6.9 0.006 4435 936016 -0.039 -1  132 560 7216034 30762638 -88  152 403 561437 15558447 -51  121 504 7757941 20166096 -81  17 3 -337438 4930083  155 370 1054831 6915557 -47		-0.011	-1.7	6.0		36691	772659	-0.042	-12401	6377	-6024	0.39*
132 560 7216084 30762638 -88 152 403 561437 15558447 -51 121 504 7757941 20166096 -61 17 3 -337439 4930083 155 370 1054831 6915557 -47		-0.009	-1.8	• 1	900.0	4435	936016	-0.039	-13698	7386	-6312	0.72
			132 162 121 17 155	660 804 804 804 804 804		7216094 7216094 7757941 -367438 1004631	30762638 30762638 15558447 20166096 4930083 6915557		-831126 -510249 -818116 -478472	602020 434380 542189 3277 399274	-279106 -75969 -275927 11173 -79198	

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATICHAL SURMARY

	0061 . 0437			NATIONAL	HATICHAL SUNNARY							
	HO. 2 CUPRENT TECHHOLOGY, STEA	H TURBINE, 615 PSIACEXT), COAL	PSIA(EX	11,004		*** STRATEGY OPTIMUM	EGY OP	TIMUM				07
	CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITE FUEL SAVINGS 10**12 B1	1503	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UNILITY TO	SAVING YEAR TY	S  TOTAL	
	101A1 A11		0.35	,	1 0	1 20		100000000000000000000000000000000000000	1 0 0 0	1		
		• • •	9 1			101204930		10010-			/0//011	
	A SAC MENANCE MUNICIPAL PROCES	6 4 6 4 4 6 4	1000		2286014	50400400		-2515867			-475739	
	ENTRATOR CANTED CALL	0 5	5577		0000000	\$559/219		410819c-	7	•	-1161613	
	FUEL A COST SACTORS TASES	254	0 0 0 0 0		070717	4500044		15136		6231	21417	
	FUEL, COST & EMISSION SAVING	0			0	0				30	0	
			NAT.	HATIONAL FUEL SAVINGS SUMMARY	SAVINGS SI	лн:1 <b>а</b> в ў						
		1 1 1 1 1 1 1	- -	FUEL SAVINGS	10**12 BTU	•12 BTU	-	1				
	CATECORY	HATURAL PE GAS DI	PETROLEUN DISTILLATE	PETROLEUM PETROLEUM DISTILLATE BOILER FUEL	645 645	E0	EOILER FUEL	COAL	OTHER	TOTAL FUEL		
		; ; ; ;	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1	1	;	
- 1	SITE PLUS UTILITY											
52	TOTAL ALL	14654	-455	6082	0	0	0	-22000	2197	S	509	
	FUEL SAVINGS CASES CALY	1713	-17	1287	0	0	0	-2371	63	•	695	
	COST SAVINGS CASES CHLY	13054	504-	5463	0	0	•	-19158	1512	4	485	
	EMISSICHS SAVINGS CASE ONLY	15	0	89	0	0	0	-3	13		33	
	FUFL & COST SAVINGS CASES	1637	-17	1259	0	0	•	-2289	53	•	643	
	FUEL, COST & EMISSION SAVING	O	0	0	0	0	0	0	•		•	
	INCLUDING COAL FUEL CONVERSION											
	TOTAL ALL	14654	-455	6032	0	0	0	-22000	2197	ĸ	509	
	FUEL SAVINGS CASES CHLY	1713	-17	1287	0	0	0	-2371	83	•	695	
	COST SAVINGS CASES GHLY	130%	405	5463	0	0	0	-19158	1512	**	486	
	ERISSIONS SAVINGS CASE ONLY	15	0	ю	0	o	0	٠.	13		33	
	FUEL & COST SAVINGS CASES	1637	-17	1259	0	0	0	-2289	53	•	643	
	FUEL, COST & EMISSION SAVING	0	0	0	٥	a	0	0	0			

01 ECS SIZE (F4)	1.57	0.35#	1.60	1.51	0.20*	1.57	1.57	1.60	1.58	1.58	1.58	09.1	1.59	1.59	1.59	1.49	1.59	1.59	1.59	1.59	1.58	1.59	1.59	1.60	
PIGS  TOTAL	-76703	-36371	-155142	-118278	-80373	-9638	-30921	-38061	-15129	-79155	-23560	-73936	-52271	-99368	-23889	-35795	-20391	-62272	-196018	-78633	-39782	-39503	-142487		-1606779 -1533220 -79155 -79155
EMISSICHS SAVINGS TONS FER YEAR UTILITY TO	114364	43808	183974	140960	98163	13967	95605	49002	20246	15051	51612	05629	62139	118141	28351	18925	23481	59035	118309	93549	65029	\$1408	168302	104901	1868420 1846476 120241 120241
LANT	-191667	-80179	-339116	-259238	-178536	-23605	-71817	-87063	-35376	-199395	-45503	-161886	-114410	-217509	-52240	-78476	-44372	-121307	-304327	-172183	-101832	-90911	-311290	-193509	- 3475199 - 3429696 - 199395 - 199395
STRATEGY OPTIMUM L EMISSIONS SAVINGS - RATIO P	-0.519	-0.733	-0.719	-0.747	-0.723	-0.034	-0.273	-0.093	-0.118	-0.122	-0.278	-0.422	-0.684	-0.689	-0.635	-0.747	-0.179	-0.082	-0.069	-0.617	-0.003	-0.304	-0.656	-0.559	<b>;</b>
*** STRA CAPITAL COST \$000	1064254	286587	1019438	889763	1559535	108937	300877	095699	234647	788427	162578	483922	345440	654622	174516	227063	243820	920080	3675610	920059	2805678	295333	962255		11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0
SAVINSS DOLLARS \$000	-123514	-9006	-388320	-215331	-94569	-608	-15933	-24503	-6832	1910	148041	-70865	-60385	-157+86	-59229	+9249-	-79361	-153856	-540306	-137826	-60178	-23491	-261121	-140416	
H DIST. COST RATIO	-0.317	-0.631	-1.47+	-0.543	-0.185	-0.001	-0.033	-0.013	-0.012	0.008	-0.110	-0.120	-0.217	-0.372	-0.819	-0.609	-0.117	-0.038	-0.037	-0.340	-0.600	-0.042	444.0-	-0.193	1
EED, PETPOLEUN UTILITY FUEL SAVINGS F	166.9	6.04	172.0	131.7	7.16	13.3	32.6	46.1	19.1	111.0	20.5	82.2	53.0	110.5	20.4	39.8	22.0	57.5	110.5	87.4	53.0	48.1	157.7	93.0	1772
SS LEVEL HIGH SFEED TOTAL FUEL SAVINSS	59.5	12.6	49.7	39.1	58.6	7.1	14.0	22.4	9.3	69.3	-1.6	23.9	16.9	32.2	7.8	11.5	7.7	47.6	6.05	25.8	6.3	8.53	2.97	2.67	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
NRY - PPOCE CONIDIESELN FUEL ENERGY SAVINGS RATIO	0.363	0.193	0.202	0.236	0.255	0.059	0.126	0.044	0.060	70 T O	-0.014	0.137	0.210	0.212	0.150	0.2.0	0.038	0.039	0.023	0.183	0.001	0.147	9.197	0.137	
CTAS GENERAL SURBARY - PPOCESS LEVEL NO. 3 CUPRENT TECHNOLOGY,DIESEL,HIGH SPE FUEL ENERGY TOTAL THOUSIPY SAVINGS FUEL RATIO SAVINGS	HO. OI NEAT PACKING	NO.02 BAFING	HOLOS MALT BEVERAGE	NO.64 WOVER FABRIC MILL	KO.05 SAW MILL	RO.CS NEWSFRINT MILL	HO.07 WPITING PAPER HILL	HO.08 COMPUGATED PAPER	HO.09 EOV EOAPD	MO.10 CHLCRIME	HO. 11 ALUHINA	HO.12 LOW DEMS. POLYETHYL	KO.13 HI DERS. POLYETHYL	NO.14 POLIVINIL CHECRIDE	NO.15 STIFENE-BUT, FUB.	нэ.16 итси	HO.17 ST PENE	HO. 13 ETHYLENE	KO.19 PETFOLEUM REFIRING	NO.20 TIPES	KO.23 INTEGNATED STEEL	MOLEG GPAY IRON FOUNDRY	KO.25 COPPER	MOLZE MOTOP VEHICLE	ALL S CASES CHLY S CASES ONLY AVINGS CASE OF SAVINGS CASE EMISSICH SAV

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NO. 3 COMPETENT TECHNOLOGY. DIESEL-HIGHS SPREED, PETFOLLEUM DIST.   No. 3 COMPETENT TECHNOLOGY. DIESEL-HIGHS SPREED, PETFOLLEUM SCATTERS   NO. 3 COMPANY   N				HALLONAL SOLUER	201100						
TOTAL   UTILITY   COST SAVINGS   CAPITAL   COST SAVINGS   CAPITAL   COST SAVINGS   COST   C	TECHNOLOGY, DIESE	L.HIGH SPEE	D,PETROLEL	JH DIST.		*** STRAT	EGY OPT	IMM			
11161704   6013426   601		TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 B1	S 1800	w	CA.		• Z	MISSIONS TONS PER UTILI	SAVING YEAR IY	S
15   15   173753   1556260   10690239   5786266   16690239   5786266   16590239   5786266   16590239   5786266   16590239   5786266   16590239   5786266   16590239   5786266   16590239   5786266   16590239   5786266   16590239   5786266   16590239   578626   16590239   5786266   16590239   1773785   177	; ; ; ;	1	• • •	1	, 9	! }		-111617		•	5146071
150   150	סיוריל	1122	20		-7737753	55265260		706901-	'n		4903969
STATE   STAT	5 (241.)	150			43151	1773785		10 4 4 - I		414	-1/6050
15:   250   43151   173785   -448575   270515     HATIOHAL FUEL SAVIHGS SUMMARY	CASE CHLY	0			0	0				٠,	0
HATTONAL FUEL SAVINGS SUPPLARY	FUEL, COST SAVINGS CASES FUEL, COST & EMISSION SAVING	15:			43151	1773785		5077		515 0	-176060
HATUPAL PETPOLEUM COAL OFRIVED GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER COAL OTHER FULL GAS DISTILLATE BOILER FULL GAS DISTILLATE GAS DI			HAT	IONAL FUEL	SAVINGS S	UPLHARY					
Corr   Corr		,	FL ETPOLEUM	JEL SAVINGS PETFOLEUM	; ;	•	! ! !	ı		TOTAL	
14654 -5620 -13375 0 0 6 4336 2197 14231 -5621 -13322 0 0 6 420 164 -229 -200 0 0 6 480 0  ES 104 -229 -200 0 0 0 6 480 0  VINS 0 0 0 0 0 0 4386 2197  VVERSION 14654 -5620 -13375 0 0 6 480 0  CNLY 0 0 0 0 0 0 4386 2197  14231 -5021 -13322 0 0 6 480 0  CNLY 0 0 0 0 0 0 0 480 0  CNLY 0 0 0 0 0 0 0 0 480 0  CNLY 0 0 0 0 0 0 0 0 0 0 0  CNLY 0 0 0 0 0 0 0 0 0 0 0  CNLY 0 0 0 0 0 0 0 0 0 0 0 0			ISTILLATE	EOILER FUEL			LER	COAL	OTHER SAVINGS	FUEL	
14-554 -5620 -13375 0 0 0 4336 2197 14-231 -5621 -13522 0 0 0 4126 2197 16-4 -229 -200 0 0 0 420 0 ES 104 -229 -200 0 0 0 480 0  17-551 16-5 -259 -200 0 0 0 480 0  17-551 16-5 -259 -200 0 0 0 480 0  17-551 -13522 0 0 0 4336 2197 17-551 -13522 0 0 0 4336 2197 18-531 -5620 -13375 0 0 0 480 0  ES 10-4 -229 -200 0 0 0 480 0  ES 10-4 -229 -200 0 0 0 480 0  ES 10-4 -229 -200 0 0 0 0 0 0  ES 10-7 -259 -200 0 0 0 0 0 0 0	; ; ; ;	1 1			1	•	1			;	
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	ION SAVING	•	0	0	0	0	0	0	0		0

12049 12.66	5052 0.454	69389 10.08	72545 1.93*	7444 0.20	31410 24.37	72905 26.56	4643 28.48	76547 28.11	17409 22.57	57038 28.15	39643 18.33	49813 9.36	57055 6.70#	23866 9.94	18770 3.88*	42590 20.92	91290 15.12	11.62 91053	49774 6.26*	87210 28.53	63660 17.35	72315 5.56#	82017 10.14	5533843 5533843 -508819 0 -508819
152862 -10	56362 -4	193163 -15	632757	99163 -7	- 26296	342749 -27	856162 -66	35325627	540818 -45	64239	159056 -1	57565	78782	29453	22168 -	51306	102014	2900718 -22	61394	521614 -34	79390	95589	100465	7669908 -55 7089903 -55 637110 -5 637110 -5
-254911	-101414	-349552	-155820	-172607	-177702	-615654	-1521006	-629803	-968228	-121277	-298399	-107378	-145937	-53319	92605-	-93896	-183304	-5125734	-1111168	-909025	-143051	-160761	-182482	~~~ ~
-0.5-8	-0.724	969.0-	-0.722	-0.670	-0.713	-0.715	-0.636	-0.683	-0.659	-0.498	-0.798	-0.693	-0.639	-0.617	-0.685	-0.294	-0.101	-0.450	-0.522	-0.080	-0.490	-0.528	-0.532	
2401531	950519	1755870	1221693	3021426	871105	2713097	6771519	2769907	4650342	535468	1417530	563369	936341	296997	233760	535103	1346050	25901728	770267	7422055	796134	1039128	1365959	51 51 51 51
-138076	-11414	-253633	-82733	-113729	11442	-334126	-666493	-314347	35347	-68228	-74073	-26561	13658-	-39535	66+5-	-90692	-88134	-2921105	-24299	-227657	-9725	-29204	86307-	1968 1968 1968 1968
-0.355	-0.800	-0.964	-0.209	-0.222	920.0	-0.683	-0.366	-0.547	10.0	-0.154	-0.116	-0.095	-0.082	-0.5+3	-0.089	-0.142	-0.022	-0.198	-0.060	-0.021	-0.017	-0.050	-0.105	
142.9	52.7	160.6	77.8	7.16	4.16	272.5	€04.8	333.1	499.1	0.09	148.6	53.7	73.7	27.5	20.7	43.0	\$ 66.3	2709.9	57.4	4.27.4	74.2	82.6	93.3	7 10 10 10 10 10 10 10 10 10 10 10 10 10
71.3	15.5	53.6	14.1	32.0	30.3	83.1	203.0	104.9	156.6	9.1	24.6	10.4	16.2	0.	χ., <del>λ</del>	14.7	72.3	1060.4	16.5	83.5	24.6	23.9	9.92	+ 1132 - 1232 - 1330 - 1330
0.357	0.201	713.0	0.131	0.285	0.053	0.2.17	0.238	0.252	0.234	990.0	0.141	0.136	0.141	0.187	0.157	0.005	0.059	0.163	0.143	0.018	0.159	0.149	0.128	
NO. 01 HEAT PACKING	MO. 02 BANING	NO.03 MALT ENEPASE	KO.OM WOVEN FAERIC MILL	NO.05 SAW MILL	NO.Co NEWSPRINT MILL	EG. 07 WRITING PAPER MILL	HO.03 CCPPUSATED PAPER	NO.09 BOK BOAFD	NO.10 CHLORINE	SOLIL ALUMINA	HOLLS LOW DEMS. POLYETHYL	NO.13 HI DEMS. FOLYETHYL	HOLIN FOUNTHIL CHECREDE	RO.15 STRENE-BUT. PUB.	KO.16 NILCH	HO.17 STIPENE	NO.18 ETHYLENE	NO.19 PETFOLEUM PEFIMINS	NO.20 TIMES	HO.23 INTEGRATED STEEL	FO.24 GRAY IRCH FOUNDRY	HOLES COPPER	P VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST CLATHAGS CASES CHLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL & COST SAVINGS CASES
	0.357 71.3 142.9 -0.355 -136076 2401531 -0.548 -254911 152662 -102049 12	MEAT FACEING 0.357 71.3 142.9 -0.355 -136076 2401531 -0.548 -254911 152662 -102049 12 BAKING 0.201 15.5 52.7 -0.600 -114154 950519 -0.724 -101414 56362 -45052 0	HEAT FACEING 0.357 71.3 142.9 -0.355 -136076 2401531 -0.548 -254913 152642 -102049 12 BAKING 0.201 15.5 52.7 -0.600 -114154 950519 -0.724 -101414 56362 -45052 0 MALT ETVEPAGE 0.217 50.6 180.6 -0.954 -253633 1755870 -0.696 -349552 193163 -156389 10	HEAT FACEING 0.357 71.3 142.9 -0.355 -136076 2401531 -0.540 -254911 152642 -102049 12  RAKING 0.201 15.5 52.7 -0.600 -114194 950519 -0.724 -101414 56362 -45052 0  HALT ETVERAGE 0.217 50.6 180.6 -0.964 -253633 1755870 -0.696 -349552 193163 -156389 10  HOWEN FREGIC MILL 0.131 14.1 77.8 -0.209 -82733 1221693 -0.722 -155820 83275 -72545 1	HEAT FACEING       0.357       71.3       142.9       -0.355       -136076       2401531       -0.540       -254911       152642       -102049       12         BAKING       0.201       15.5       52.7       -0.600       -114154       950519       -0.724       -101414       56362       -45052       0         MALT FIVEPAGE       0.217       50.6       180.6       -0.964       -253633       1755670       -0.696       -349552       193163       -156369       0         MOLEN FAEGIC HILL       0.131       14.1       77.8       -0.209       -82733       1221693       -0.722       -155020       03275       -72545       1         SAH HILL       0.285       32.0       91.7       -0.222       -113729       3021426       -0.670       -172607       99163       -74444       0	HEAT FACEING         0.357         71.3         142.9         -0.355         -136076         2401531         -0.540         -254911         152642         -102049         12           BANING         0.201         15.5         52.7         -0.600         -114154         950519         -0.724         -101414         56362         -45052         0           HALL FIVEPAGE         0.217         50.6         160.6         -0.964         -253633         1755670         -0.696         -349552         193163         -156369         0           MOLEN FAEGIC MILL         0.131         14.1         77.8         -0.209         -82733         1221693         -0.722         -155620         83275         -72545         1           SAH MILL         0.285         32.0         91.7         -0.222         -113729         3021426         -0.670         -172607         99163         -74444         0           NEWSPRINT MILL         0.253         30.3         91.4         0.026         11442         871105         -0.713         -177702         96292         -61410         2410         2410         2410         2410         2410         2410         2410         2410         2410         2410         2410	HEAT FACEING         0.357         71.3         142.9         -0.355         -136076         £401531         -0.540         -254911         152642         -102049         12           RAKING         0.201         15.5         52.7         -0.600         -114194         950519         -0.724         -101414         56362         -45052         0           MALLY EVVERAGE         0.201         15.6         160.6         -0.964         -253633         1755670         -0.696         -349552         193163         -156362         0           MACIN FARENCE MILL         0.131         14.1         77.8         -0.209         -82733         1221693         -0.722         -155820         83275         -72545         1           SAH MILL         0.285         32.0         91.7         -0.222         -113729         3021426         -0.670         -172607         93163         -74444         0           HEKSTRINT MILL         0.253         30.3         91.4         0.026         -11442         871105         -0.713         -17702         96292         -81410         24           MENSTRIME MILL         0.207         -0.663         -334126         2713097         -0.715         -0.5654         342749	MEAT FACEING         0.357         71.3         142.9         -0.355         -136076         2401531         -0.540         -254911         152642         -102049         12           BAKINS         0.201         15.5         52.7         -0.600         -114154         950519         -0.724         -101414         56362         -45052         0           MALT FIVEPAGE         0.217         50.6         160.6         -0.964         -253633         1755670         -0.696         -146952         193163         -156362         -45052         0           MOLEN FARFILL         0.131         14.1         77.8         -0.209         -82733         1221693         -0.722         -155020         03275         -75545         1           SAM MILL         0.285         32.0         91.7         -0.222         -113729         3021426         -0.670         -172607         93163         -74449         0           MEKITINIS PAPER MILL         0.293         20.6         0.683         -314126         2713097         -0.715         -0.636         -0.7159         -0.636         -1521006         -0.636         -1521006         -0.636         -0.7159         -0.636         -0.7159         -0.715         -0.715         -0	HEALT FACE RIGG         0.357         71.3         142.9         -0.356         -136076         2401531         -0.540         -254911         152802         -102049         12           BANTHS         0.201         15.5         52.7         -0.600         -114154         950519         -0.724         -101414         56362         -45052         0           MALLY EVVERAGE         0.217         50.6         160.6         -0.954         -253633         1755670         -0.696         -349552         193163         -155369         0           MGCENT FALLY EVVERAGE         0.217         50.6         160.6         -0.954         -253633         1755670         -0.696         -349552         193163         -72545         1           SAH MILL         0.285         35.0         91.7         -0.222         -113729         3021426         -0.670         -172607         96292         -81410         2           HELITHIS PAPER MILL         0.253         90.1         272.5         -0.683         -0.715         -0.715         -0.15654         342749         -272905         26           COPPHUSATED PAPER         0.236         0.94.8         -0.366         -0.6693         -0.7159         -0.636         -1521006	HERSTRING         0.357         71.3         142.9         -0.355         -136076         2401531         -0.540         -254911         152622         -102049         12           FARTIG         0.201         15.5         52.7         -0.600         -114194         90519         -0.724         -101414         56362         -102049         12           MACHIT FIVEPASE         0.217         50.6         160.6         -0.964         -253633         1755670         -0.696         -349552         193163         -156369         0           MACHIT FIVEPASE         0.217         0.131         14.1         77.8         -0.209         -82733         1221693         -0.696         -349552         193163         -156369         10           SALH MILL         0.131         14.1         77.8         -0.202         -113729         3021426         -0.772         -155820         33779         -74449         0           MERSTRINT MILL         0.253         30.3         91.4         0.025         -11442         371169         -0.713         -17702         96292         -01410         2           COPPUSATION MILL         0.236         104.9         0.366         -0.6649         0.713         -17702	HEAT FACE HIG         0.357         71.3         142.9         -0.355         -136076         2401531         -0.540         -254911         152662         -102049         12           FARLING         0.201         15.5         52.7         -0.600         -114194         90519         -0.724         -101414         56362         -45052         0           MALT FIVEPASE         0.217         50.6         180.6         -0.964         -253833         1755070         -0.606         -349552         193163         -156360         0           MALT FIVEPASE         0.217         50.6         180.6         -0.209         -82733         1221693         -0.722         -153620         63375         -72545         1           SAH MILL         0.131         14.1         77.6         -0.202         -113729         3021426         -0.670         -172607         93163         -72545         1           MERSTERINI MILL         0.253         30.3         91.4         0.026         -11442         871105         -0.713         -17702         96292         -81410         2           COBRUSATION PAPER         0.238         20.3         9.14.9         0.026         -0.653         -0.636         -1521006	HEAT FACE HIGS  0.157  11.15  12.19  12.19  12.19  12.10	PARTITION         0.357         71.3         142.9         -0.355         -136076         2401531         -0.546         -254911         152062         -102049         12           PARTITIONS         0.201         15.5         52.7         -0.600         -114154         9.0519         -0.724         -101414         56362         -45052         0           MILL         0.201         15.5         52.7         -0.600         -114154         9.0519         -0.724         -101414         56362         -45052         0           MGLIT EVERAGE         0.201         52.6         160.6         -0.964         -251633         1755670         -0.696         -349552         193163         -156360         0         -156360         0         -156360         0         -156360         0         -156360         0         -156360         0         -17646         0         0         -11462         -17660         -0.696         -17660         -0.696         -17372         -15660         0         -15660         0         -17644         0         0         -11442         90146         0         -17660         -0.696         -17660         -0.696         -17660         -0.696         -17166         -0.716         <	REMLING         0.357         71.3         142.9         -0.355         -136076         2401531         -0.546         -254911         15262         -10049         12049         -0.546         -136076         2401531         -0.546         -254911         15262         -10049         11         -0.546         -114194         960519         -0.724         -101414         5636         -46052         0         -0.660         -114194         960519         -0.724         -101414         5636         -46052         0         -0.660         -114194         960519         -0.724         -101414         5636         -46052         0         -0.660         -0.964         -253633         1221693         -0.724         -101414         5636         -46052         0         -0.660         -0.964         -253633         1221693         -0.722         -113729         3021426         -0.670         -0.150         -0.150         -0.1442         871105         -0.713         -17702         96292         -0.1410         24444         96010         -0.964         -0.9146         -0.96493         -0.96649         96010         -0.964         -0.96649         -0.96649         -0.96649         -0.96649         -0.96649         -0.96649         -0.96649         -0.96649<	REMLING         0.357         71.3         142.9         -0.355         -136076         2401531         -0.546         -254911         152622         -102049 12           BANLING         0.201         15.5         52.7         -0.600         -114154         960519         -0.724         -101414         56352         -45052         0           MALLING         0.201         15.6         180.6         -0.924         -253633         1755670         -0.694         -349552         193163         -155390         0           MOCHI FERDIC MILL         0.131         14.1         77.8         -0.204         -253633         1721693         -0.724         -115620         93262         -45052         0           MUCHI FERDIC MILL         0.131         14.1         77.8         -0.204         -6.2043         -17702         94295         -75545         1           MUCHI FERDIC MILL         0.131         14.4         0.025         11442         871105         -0.713         -17702         94292         -75444         9           MUCHI MA         0.135         14.4         0.026         11442         871156         -0.713         -17702         94292         -76444         9           COPPULL	HEAT FLOTING 0.157 71.3 142.9 -0.355 -136076 5401531 0.546 -254911 152662 -102049 12 EARLING 0.201 15.5 52.7 -0.660 -114194 9.0519 -0.724 101414 56.362 -45052 0 114114 114114 11514 11514 11	HEAT FIG. 6.357 71.3 1-2.9 -0.355 -136076 5401531 -0.540 -254911 155062 -102049 12 EARLING CALLED CA	HEALT FACE BLG 0.357 71.3 142.9 -0.355 -136076 2401531 0.540 5.54911 152.62 -102049 12 EARLTS 0.201 15.5 52.7 -0.600 -114154 9.0519 0.724 101414 56.362 -45052 0 14117 (AVEPAGE 0.217 0.201 15.5 52.7 -0.600 -114154 9.0519 0.724 101414 56.362 -45052 0 14117 (AVEPAGE 0.217 0.213 14.1 77.8 -0.294 -253533 1755670 0.696 -349552 19316 -155399 10 40.024 14.1 77.8 -0.294 -253533 1755670 0.696 -349552 19316 -15539 10 40.024 14.1 77.8 -0.205 -113729 3021426 -0.670 -172607 93163 -74444 0 14417 14.1 77.8 -0.252 -113729 3021426 -0.670 -172607 93163 -74444 0 144171 14.1 77.8 -0.252 -113729 3021426 -0.670 -172607 93163 -74444 0 144171 14.1 77.8 -0.252 -113729 3021426 -0.670 -172607 93163 -74444 0 144171 14.1 77.8 -0.252 -113729 302142 -0.235 -0	HEALT FACELLIGG 0.357 71.3 142.9 -0.355 -118076 2401531 0.544 -254911 152662 -102049 12	HEAT FIGNES 0.157 71.3 142.9 -0.155 -110076 240151 -0.540 254911 152.02 -102049 12 PARTICL 0.201 15.5 52.7 -0.000 -114154 9.00519 -0.754 101414 56.35 14052 102049 12 PARTICL 0.201 15.5 52.7 -0.000 -114154 9.00519 -0.006 1404522 103163 156.35 14052 103163 156.35 14052 103163 156.35 14052 103163 15.5 14052 103163 15.5 14052 103163 15.5 14052 103163 15.5 14052 11.2 11.2 14052 11.2 14052 11.2 14052 11.2 14052 11.2 14052 11.2 1405	RELITION         0.357         71.3         162.9         -0.355         -130076         540151         0.546         -254911         155.02         -102049         12           BALTIS         0.201         15.5         52.7         -0.600         -114154         \$60519         0.724         -101414         \$6052         -101414         \$6052         -10049         12         -4052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         -101414         \$6052         \$6052         \$6052         \$6050         \$6052         \$6050         \$6052         \$6050         \$6052         \$6050         \$6052         \$6050         \$6052         \$6050         \$6052         \$6050         \$6052         \$6052         \$6050         \$6052         \$6052 <t< td=""><td>RATITE FOLDS         0.357         71.3         145.9         0.1350         410076         450015         0.5491         250491         150026         -130049         12         90119         0.5492         250491         160026         -140149         900519         0.754         110144         950519         -0.754         110144         950519         -0.754         13161         145052         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.755         0.756         0.755         0.755         0.755         0.755         0.755         0.755&lt;</td><td>REALTY FLORING         0.357         71.3         142.9         -136076         5401511         0.5401         155022         -130249         12           RALING         0.201         0.217         1.5.9         0.218         1.5.9         0.218         0.754         1.5.962         -19024         0.754<td>HELL FLOTHIGA 0.357 71.3 142.9 -0.355 -119076 5401511 -0.546 -2.24411 155062 -102049 12 Hell FLOTHIGA 0.257 0.500 1-0.548 124049 12 Hell FLOTHIGA 0.257 0.500 1-0.548 124052 0.50151 -0.546 124052 0.50152 0.50151 0.5014 0</td></td></t<>	RATITE FOLDS         0.357         71.3         145.9         0.1350         410076         450015         0.5491         250491         150026         -130049         12         90119         0.5492         250491         160026         -140149         900519         0.754         110144         950519         -0.754         110144         950519         -0.754         13161         145052         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.754         -45052         0.755         0.756         0.755         0.755         0.755         0.755         0.755         0.755<	REALTY FLORING         0.357         71.3         142.9         -136076         5401511         0.5401         155022         -130249         12           RALING         0.201         0.217         1.5.9         0.218         1.5.9         0.218         0.754         1.5.962         -19024         0.754 <td>HELL FLOTHIGA 0.357 71.3 142.9 -0.355 -119076 5401511 -0.546 -2.24411 155062 -102049 12 Hell FLOTHIGA 0.257 0.500 1-0.548 124049 12 Hell FLOTHIGA 0.257 0.500 1-0.548 124052 0.50151 -0.546 124052 0.50152 0.50151 0.5014 0</td>	HELL FLOTHIGA 0.357 71.3 142.9 -0.355 -119076 5401511 -0.546 -2.24411 155062 -102049 12 Hell FLOTHIGA 0.257 0.500 1-0.548 124049 12 Hell FLOTHIGA 0.257 0.500 1-0.548 124052 0.50151 -0.546 124052 0.50152 0.50151 0.5014 0

- COCCHERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SURBARY

Total Utility   Total Utility   COST SAVINGS   CAPITAL   FILES SAVINGS   CAPITAL   FILES   COST SAVINGS   CAPITAL    RO. 4 CURPENT TECHROLOGY, DIES	SEL, LOW SPEED, PETROLEUM BOILER GRADE	PETROLEUR	1 BOILER GR.	ADE	S ***	*** STRATEGY OPTINUM	PTIMUM				
7210 22064 -19066528 226112832 -43569856 24300016 903 2462 249536 226112832 -43569856 24300016 903 2462 249536 22473472 -4918763 2647517 0 803 2462 249536 23473472 -4918763 2647517 0 803 2462 249536 23473472 -4918763 2647517 0 803 2462 249536 23473472 -4918763 2647517 0 803 2462 249536 23473472 -4918763 2647517 0 803 2462 249536 23473472 -4918763 247517 0 803 2462 249536 23473472 -4918763 247517 0 803 249536 2475174 FULL 0 804 14654 -425 -10066 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CATEGORY	TOTAL L FUEL SAVINGS S 10**12 BTU 1	JTILITY FUEL SAVINGS 10**12 B)	C05T S	AVIRGS DOLLARS \$000	CAPITAL CGST \$C00		PLAN	ENISSIONS TONS PER T UTILI	SAVINS YEAR ITY	S TOTAL
TEID   C2064   -19666526   C26112832   -43569856   C4300016     S03		1	1	;	1	1 1	!	1 1 1	- 1	•	1 1
Tild   Control   107al All	22.10	22064	,	19646528	2261128	2	-43569			9060476	
14654	FULL SAVINGS CASES ONLY	7210	40000	1	19066528	2261128	ı c.	-43569			7066926
HATIONAL FUEL SAVINGS SUBJECT   FUEL SAVINGS   C149576   C1491676   C149167	COST SAVINGS CASES CRUY	£ 000	2462		913652	234734	. 24	-4818			2171244
## 1993 2452 249536 23473472 -4918743 2647517 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	EMISSIONS SAVINGS CASE ONLY	0	3		C		0				0
HATIGNAL FUEL SAVINGS SURHARY	FUEL & COST SAVINGS CASES	803	2482		249536	234734	્ય	-4918			-2171244
HATICHAL FUEL SAVINGS SUBJARY	FUEL, COST & EHISSION SAVING	0	0		0		0		0	0	0
TOTA  HATUPAL PETROLEUM PETROLEUM GAS DISTILLATE FOILER COAL OTHER FU  GAS DISTILLATE GOILER GAS DISTILLATE FOILER COAL OTHER FU  GAS DISTILLATE GOILER GAS DISTILLATE FOILER FUEL SAVINGS  14654 -425 -30066 0 0 0 20650 2197  14654 -425 -30066 0 0 0 2766 0  C280 0 -2263 0 0 0 2766 0  C280 0 0 0 0 0 0 0 0  C390 0 -2263 0 0 0 0 20850 2197  14654 -425 -30666 0 0 0 0 20850 2197  C20 0 -2263 0 0 0 2766 0  C2050 0 -2263 0 0 0 0 0 0 0 0 0  C2050 0 -2263 0 0 0 0 0 0 0 0 0  C2050 0 -2263 0 0 0 0 0 0 0 0 0  C2050 0 -2263 0 0 0 0 0 0 0 0 0  C2050 0 -2263 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0 0 0 0 0  C2050 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			HAT	TOHAL FUEL	SAVINGS S	JEISTARY					
TOTA  HATUPAL PETROLEUTI PETROLEUTI COAL DEPINED  CAS DISTILLATE 6011ER GAS DISTILLATE FOILER FUEL SAVINGS  L4654425		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Ĭ.	JEL SAVINGS	1	*12 BTU	1 1 1 1 1	!			
14654 -425 -10066 0 0 20850 2197 14254 -425 -10066 0 0 20850 2.17 250 0 -2263 0 0 2786 0 230 0 -2263 0 0 0 2786 0 0 0 0 0 2786 0 0 14654 -425 -10066 0 0 0 20850 2197 14654 -425 -10066 0 0 0 20850 2197 250 0 -2263 0 0 0 2786 0 0 0 0 0 2786 0 0 0 0 0 2786 0	CATEGORY		ROLEUM STILLATE	PETROLEUM 601LER FUEL	645 645	L DERIVED ISTILLATE	EOILER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL FUEL	
14654 -425 -10066 0 0 0 20650 2197 14554 -425 -10066 0 0 0 20650 2 77 260 0 -2263 0 0 0 2786 0 0 0 0 0 0 0 2786 0 0 0 0 0 0 0 2786 0 0 0 0 0 0 2786 0 0 14654 -425 -10066 0 0 0 20850 2197 14654 -425 -10066 0 0 0 20850 2197 260 0 -2263 0 0 0 2786 0 0 0 0 0 2786 0					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1	i
\$\begin{array}{cccccccccccccccccccccccccccccccccccc	SITE PLUS UTILITY										
14054 -425 -30066 0 0 20650 2 17 250 0 -2263 0 0 2786 0 250 0 -2263 0 0 2786 0 250 0 -2263 0 0 0 2786 0 250 0 -2263 0 0 0 2786 0 251014 14654 -425 -30066 0 0 20850 2197 250 0 -2263 0 0 2786 0 250 0 0 2055 0 2197 250 0 0 2055 0 0 0 0 0 0 0 0 0 0 250 0 0 0 0 0 0 0 0 0 0 250 0 0 0 0 0 0 0 0 0 250 0 0 0 0 0 0 0 0 0 250 0 0 0 0 0 0 0 0 250 0 0 0 0 0 0 0 0 0 250 0 0 0 0 0 0 0 0 0 250 0 0 0 0 0 0 0 0 0 250 0 0 0 0 0 0 0 0 0 0 250 0 0 0 0 0 0 0 0 0 0	TOTAL ALL	14654	-425	-30066	0	0	0	20850	2197	72	10
510H 14654 -425 -30066 0 0 2786 0 0 0 0 2786 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FULL SAVINGS CASES ONLY	14554	-425	-30066	73	0	0	20850	2 17	72	10
510H 14654 -425 -30066 0 0 0 20850 2197 14654 -425 -30066 0 0 0 20850 2197 250 0 -2263 0 0 0 20850 2197 200 0 0 -2263 0 0 0 0 2766 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CC JT SAY 1455 CASES ONLY	260	0	-2263	0	0	0	2736	0	40	03
510t 14654 -425 -30666 0 0 2766 0 0 0 2766 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	EMISSICHS SAVINGS CASE ONLY	0	c	0	0	0	0	0	0		0
510H 14654 -425 -30666 0 0 0 20850 2197 14654 -425 -30666 0 0 0 20850 2197 280 0 -2263 0 0 0 2766 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FUEL & COST SAVINGS CASES	230	0	-2263	0	0	o	2766	0	40	03
510H 14654 -425 -30066 0 0 20850 2197 14654 -425 -30066 0 0 20850 2197 200 0 -2263 0 0 0 2766 0 0 0 0 0 0 0 0 280 0 -2263 0 0 0 2766 0 0 0 0 0 0 0 0	FULL, COST & ENISSION SAVING	0	0	0	9	0	0	0	0		0
14654 -425 -30066 0 0 20850 2197 14654 -425 -30066 0 0 20850 2197 200 0 -2263 0 0 0 2766 0 280 0 -2263 0 0 0 2766 0	INCLUDING COAL FUCE CONVERSION										
14654 -425 -30066 0 0 0 20850 2197 200 0 -2263 0 0 0 2766 0 0 0 0 0 0 0 0 0 280 0 -2263 0 0 2786 0	TOTAL ALL	14654	-425	- 30066	0	0	0	20850	2197	72	01
280 0 -2243 0 0 0 2766 0 0 0 2780 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FUEL SAVINGS CASES O'CLY	14654	-425	- 30066	0	0	0	20950	2197	72	10
280 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CCST STATES CASES ONLY	280	0	-2263	0	0	0	2766	0	ణ	03
280 0 -2263 0 0 0 2786 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FRITTEN SAVINGS CASE OWLY	0	0	0	0	0	0	•	0		0
	FUEL & COST SAVINGS CASES	280	0	-2263	0	0	0	2786	0	60	03
	FUEL COST & FITESTON SAVING		c	0	ی .				· c	1	, 0

01 ECS SIZE (FIW)	7.69	0.11*	5.06	* 96.0	*10.0	35.55	26.42	72.55	71.82	9.89	42.27	5.48	7.16	6.82	7.37	2.44	9.76	5.21	84.56	8.96	98.23	7.54	7.14	12.84	
 TAL	85023	12050	84131	38629	17267	46544 3	102095 2	490167 7	135060 7	339856 2	78257 4	43704	39797	72454	18973	12253	55579 2	1 15265	2925515 8	79672	393484 9	37343	113931	126680 1	77 77 75 75 75 75 75 75 75 75 75 75 75 7
ENISSIONS SAVINGS TONS PER YEAR UTILITY TO	05956	13379	98133	45721	9030	52561	115615	553351	152791	383239	97812	51024	47196	85917	22196	14180	52342	97378	2931474	76768	521814	06805	128628	142677	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
LAHT	-:0627	-1329	-14002	-7092	8237	-6037	-13520	-63184	-17731	-43383	-19555	-7320	-7399	-13462	-3223	-1927	3337	1852	-5959	-9322	-128330	-3541	-14897	-15997	-394710 -394710 -224920 13426 -224920
*** STRATEGY OPTINUM PITAL ENISSIONS COST SAVINSS - SCOO RATIO P	0.658	0.533	0.648	0.384	0.155	0.408	0,660	0.660	099.0	925.0	0.528	0.249	0.554	0.647	0.603	0.447	0.382	0.124	679.0	959.0	180.0	0.288	0.643	0.645	
*** STRA CAPITAL COST \$G00	525710	150455	334416	268010	1464510	158537	366269	1437110	440281	864567	525649	164399	140583	259794	72441	50695	253346	1050713	1066966	300881	3517163	138556	400016	500555	
M DIST SAVINGS BOLLARS \$000	-30459	-16942	-77027	-14005	-1661	30619	6732	-112486	-12255	327637	-71295	17427	13631	14661	-16651	2146	-114409	-297333	-801473	-1484	344442	18794	-1256	-26748	-819384 -819054 778519 -413403 776619
PETFOLEUM DIST COST SAVING BOLLA RATIO \$000	-0.078	-0.133	-0.292	-0.036	-0.003	0.070	0.018	-0.060	-0,021	0.132	-0.161	0.027	6+0.0	0.035	-0.230	0.020	-0.169	-0.073	-0.054	+00.00-	0.032	0.034	-0.002	-0.635	
CT FIRED, UTILITY FUEL SAVINSS	4.68	12.5	91.7	42.7	9.6	6.65	91.9	520.5	144.1	353.7	91.4	47.7	44.1	60.3	20.7	13.2	48.9	9.+0	2738.7	83.6	4.784	38.2	120.2	133.2	ကြာက်စို့ရှိရှိ ကြောက်ပို့ရာရှိ
AL SUBBAPY - PROCESS LEVEL TECHNOLOGY,GAS TUTBINE, DIRECT FIRED, JEL EREFOR TOTAL UTILITY SAVINGS FUEL FUEL RATIO SAVINGS SAVINGS	43.8	6.5	9.44	18.2	18.9	26.8	49.0	281.1	77.4	205.3	36.7	23.3	20.6	37.6	10.3	6.3	27.7	62.1	9.6261	5.44.	203.9	23.5	03.2	70.5	டுக்குச் செற
PY - PPOCES FY, GAS TUSE JEL ENERGY SAVINSS RATIO S	0.334	0.162	0.310	0.169	0.169	0.224	0,340	0.343	0.342	0.307	9.215	0.134	0.270	0.309	0.290	0.216	0.121	0.050	0.303	0.300	0.045	0.152	0.320	0.234	
CTAS GENERAL SURBARY NO. 5 CUPPENT TECHNOLOGY UE INDUSTRY	NO.01 MEAT PACKING	KO. 62 BAKING	NO.03 MALT BEVERAGE	KO.04 MOVEN FAERIC MILL	HO.05 SAW MILL	HO.06 HEWSPRINT MILL	RO.07 KRITING PAPER MILL	NO.03 COPPUSATED PAPER	NO.09 EON BOARD	HO.10 CHLORINE	RO.11 ALUMINA	ED. 12 LOW DENS. POLYETHYL	HO.13 HE DEMS. POLYETHYL	83.14 POLYVINYL CHLORIDE	NO.15 STIRENE-EUT. RUB.	137.16 NTUCH	NO.17 STIRENE	NO.13 ETHYLENE	MOLIG PETROLEUM PEFINING	NO.CO TIRES	HO.23 INTEGRATED STEEL	HOLLS GRAY IRON FOUNDRY	ROLDS COPPER	KO.26 MOTOP VEHICLE	। বং গুগেল

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY -	NATIONAL SUMMARY

	3	מרוובע או זה	MATIONAL S	HATIONAL SUMMARY		•				
HEAR : 1990 HO. 5 CURRENT TECHNOLOGY, GAS	TURBINE, DIRECT FIRED, PETROLEUM DIST	CT FIRED,	, PETROLEUM	I DIST	*** STR.	*** STRATEGY OPTIMUM	TIMUM			07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12	UTILITY FUEL SAVINGS 10**12 BTU	COST	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR - T UTILITY T	SAVINGS YEAR TY TOTAL	
1 3 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	į	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		# # # !		• • • • • • • • • • • • • • • • • • •	
TOTAL ALL	9318	15843		-3537063	65562976		-1451574	74 17161296	68260151 962	
SS CASES ONLY	9318	15843		-3537063	65562976		-1451574	_		_
COST SAVINGS CASES ONLY	6552	4806		2254318	19725520		-786918	ស	4	
EMISSICHS SAVINGS CASE OHLY	205	888		-2599095	11447728		41224			
FUEL & COST SAVINGS CASES FUEL,COST & EMISSION SAVING	6 वे क व	4806 0		2254818	19725520		-786918 0	18 5397987 0 0	461107	m 0
		HAT	HATIOHAL FUEL SAVINGS SUMHARY	SAVINGS	UMNARY					
		i		;						
CATEGO21	HATURAL PE GAS DI	 PETROLEUM DISTILLATE	FUEL SAVINGS   PETROLEUM   BOILER   FUEL	10 GAS	10**12 BTU COAL DERIVED - DISTILLATE B	BOILER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL FUEL	
	1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	; ; ;	
SITE PLUS UTILITY				•	•	•				
ALL ALL	70771	10101	95.0%	> 0	<b>&gt;</b> 6	<b>,</b>	07041	2107	9110	
FORE SAVINGS CASES ONLY	1000 C	70701	9600	9 6		<b>,</b>	2714	775	2449	
FMISSIGNS SAVINGS CASE CHLY	6992	-0191	-5187			0	556	77	595	
FUEL & COST SAVINGS CASES	2274	7949-	1134	0	0	0	2714	775	5449	٠
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	9	0	
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14654	-18125	-4036	0	0	0	14628	2197	9318	
35 CASES ONLY	14654	-18125	-4036	0	0	0	14628	2197	9318	
COST SAVINGS CASES OFLY	2274	14447	1134	0	0	0	2714	775	2449	
ENISSIONS SAVINGS CASE ONLY	6932	-2191	-5187	0	0	0	556	44	592	
I SAVINGS CASES	2274	74447	1134	0	0	0	2714	775	2449	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0	0	

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65 ECS SIZE TOTAL (MIL)	220126 25.15	38752 0.43*	38818 10.07	26163 3.76*	73826 0.20*	118148111.13	262032 83.51	1254391137.35	344475112.78	640922 68.02	213271133.58	114541 18.32	104957 22.53	191704 21.53	29935 14.05	37513 9.10*	33613 20.81	50390 15.20	2499653112.68	248217 35.25	361079 99.46	63839 17.30	358911 28.28	394705 50.39	7920029 7920029 63289 63339
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	301653 2	53214	193282	175946 1	98163	161905	359981 2	1720037 12	472668 3	860238 6	304090 2	1 950651	146478	267550 1	41736	52123	51023	95926	2894593 24	346196	521814	79390	501349	550909	06E
LANT	-81526	-14463	-54464	-49783	-24337	-43757	65626-	-465647	-128193	-219316	-90818	-44515	-41521	-75846	-11502	-14610	-17410	-42267	-364636	-97980	-160735	-15501	-142438	-156204	-2496007 -2496007 -15501 -15501
STRATEGY OPTIMUM L EHISSIONS SAVINGS - RATIO P	0.657	0.656	0.617	0.653	999.0	0.657	0.657	0.657	0.657	0.662	0.602	0.653	0.653	0.653	0.587	0.654	0.233	0.064	0.472	0.653	9.000	0.492	0.653	0.653	i
*** STRA CAPITAL COST \$000	2211045	1446664	971820	1486349	4670155	440578	1155159	5102087	1435225	2829143	891234	717006	583605	1082841	215000	267052	340180	1285836	11350818	1474928	4344411	414931	1876731	2442335	ାଚିତ୍ର ମ   ଶ୍ରୀର ପ   ସ୍ୱାସ ଓ
SAVINGS DOLLARS \$000	856235-	-195398	-297663	-245522	-346945	-96333	-414462	-2118597	-561593	-427160	-427739	-41577	-154406	-319714	-64313	-57601	-119125	-314922	-1804829	-476402	-31685	10619	-666503	-791675	51 51 10 10
LEUM DIST COST RATIO	-1.254	-1.368	-1.130	-0.619	-0.678	-0.221	-0.847	-1.128	-0.977	-0.172	-0.967	-0.065	-0.550	-0.756	069.0-	-0.540	-0.176	-0.078	-0.122	-1.176	-0.003	0.019	-1.134	-1.045	'
L .FIRED, PETPOLEUM DIST .UILITY COST FUEL SAVINGS RATIO	282.0	49.7	180.7	164.4	91.7	153.8	286.2	1616.9	445.7	793.9	284.0	143.6	136.7	250.2	38.9	48.6	47.7	00.5	2704.2	323.5	437.4	74.2	468.5	514.5	
ESS LEVEL YCLE,DIR.FIF Y TOTAL U FUEL SAVINGS :	90.5	15.3	54.7	49.1	32.9	49.1	5.06	516.2	141.9	275.8	77.8	45.1	8.01	74.5	11.9	14.7	13.1	28.0	15.40.1	56.5	135.0	35.2	139.8	153.5	100 E E E E E E E E E E E E E E E E E E
JAKY - PROCES OGY,COUB.CYC FUEL ENERGY SAVINSS RATIO	0.267	0.213	0.235	0.253	0.293	693.0	792.0	692.0	0.269	0.266	0.214	652.0	0.256	0.256	0.223	0.259	0.057	0.022	0.237	0.250	0.030	0.227	0.256	0.244	
CTAS GENEPAL SUMMARY - PFOCESS LEVE NO. 6 CURRENT TECHNOLOGY,COMB.CYCLE,DIR FUEL ENERGY TOTAL THOUSTRY SAVINGS FUEL RATIO SAVINGS	HO.OI MEAT PACKING	NO.02 BAKING	NO.03 HALT BEVERAGE	HO.04 HOVEN FABRIC MILL	NO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 KRITING PAPER MILL	NO.08 COPRUSATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	RO.11 ALUMINA	NO.12 LOW DEMS. POLYETHYL	HO.15 HI DERS. POLYETHYL	10.14 POLYVIER CHLORIDE	to.15 STRREME-BUT. RUB.	EQ. 16 H1LOH	RO.17 STIREME	NO.18 ETHYLENE	NO.19 PETFOLEUM REFINING	HO.20 TIRES	MO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	MO.25 COPPER	HOLDS HOTCR VEHICLE	54VTAS 54VTAS 53VTAS 1045 54V 6 C15T 5

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- COSENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUMMARY

			HALLUMAL SUMMART	SUCIENT						
TEAR : 1990 HO. 6 CURRENT TECHNOLOGY,COMB.CYCLE,DIR.FIRED,PETROLEUM DIST.	.cycle,bir.F1	TRED, PETRO	LEUM DIST.		*** STRATEGY OPTINUM	3Y OPT3	HOH			07
CATEGORY	TOTAL UTILITY FUCL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT	COST	SAVIIIGS DOLLARS \$000	CAPITAL COST \$000		EHI PLANT	S Z	AVINGS EAR Y TOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING	11878 11878 68 0 0	33909 33909 142 142 142 0	1 ' '	-40162430 -40162430 20738 0 20738	154349056 154349056 795152 0 795152	'	-9575305 -9575305 -29713 -29713	5 3698536 5 3698536 3 152176 3 152176	36 27410320 36 27410320 76 122463 0 0 76 122463	
		NATI	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS SU	UHITARY					
CATEGORY	HATURAL PI GAS DI	HATURAL PETROLEUM PETROLEUM GAS DISTILLATE BOILER FUEL	FUEL SAVINGS PETROLEUM E BOILER FUEL	10 CO GAS	COAL DERIVEDDISTILLATE BOILER	ER	COAL FUEL	T OTHER SAVINGS	TOTAL FUEL	
\$ 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	: :	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	; ; ; ;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		i !	!	:	!	
SITE PLUS UTILITY TOTAL ALL	14654	-29316	-7851	0	0	0	32694	2197	11878	
FUEL SAVINGS CASES ONLY	14654	-29816	-7851	0	0	0	32694	2:37	11378	
COST SAVINGS CASES CHLY	71	-124	101-	0	0 0	0 (	144	78	89	
ENIDATORS DAVINGS CADE UNLT EUFL A COST SAVINGS CASES	21.0	-124	-101		· •	- 0	144	n 82	9 69	
FUEL, COST & EMISSICH SAVING	0	0	0	0	0	0	0	0	0	
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14654	-29816	-7851	0	0	0	32694	2197	11878	
FUEL SAVINGS CASES OHLY	14654	-23316	-7351	0	0	0	32694	2197	11878	
COST SAVINGS CASES ONLY	71	-124	-101	0	0	0	144	78	68	
ENISSIONS SAVINGS CASE CHLY	0	0	0	0	0	0	0	0	0	
FUEL & COST SAVINGS CASES	7.1	-124	-101	0	0	0	144	78	68	
FUEL, COST & FMISSIGH SAVING	0	0	0	0	0	0	0	0	0	

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01 ECS SIZE (F3)	2.82	*50.0	1.62	0.14*	0.01*	15.63	9.10	18.37	31.89	3.27	5.61	79.0	1.03	86.0	96.0	0.30*	77.03	9.55	3.06	1.45	7.21	*65.0	1.15	2.11	
16S  TOTAL	15960	3069	18529	2761	14067	11631 1	23777	150819 4	41383 3	47263	-236	2527	2679	1065	1501	1741	28369 2	56944	102598 1	6195	26853	-81	8147	9715	+ O M O M
EHISSIONS SAVINGS TONS FER YEAR UTILITY TO	31613	4941	29096	5889	4354	21641	37340	231820	64017	39210	11913	5579	6024	10983	2628	1541	48099	58685	200917	12957	41865	2759	18339	20853	105-5
LANT	-11653	-1772	-10567	-3128	6743	-10010	-13563	-81001	-22635	8053	-12149	-3053	-3345	-6082	-1127	-800	-19730	-31743	-98319	-6762	-15013	-2840	-10242	-11168	-358903 -346754 -222743 -222743 -222743
*** STRATEGY OPTINUM PITAL ENISSIONS COST SAVINGS - SOOU RATIO P	0.225	0.132	0.258	0.027	0.125	0.100	0.202	0.341	0.308	0.071	-0.003	0.014	0.036	0.045	0.103	0.026	0.186	0.032	0.034	990.0	900.0	-0.001	0.057	0.061	
*** STRAT CAPITAL E COST S	643659	196922	441217	547154	1138206	157042	319034	1222528	371083	515281	161651	151071	126695	235433	53030	53305	361299	835879	2658750	310464	2957460	81114	391431	477208	
R. B.G. SAVINGS DOLLARS \$000	-13157	-24173	-8451	-16507	37310	10551	35647	271990	77703	139306	-30802	-8740	-6854	-12799	-1258	-3139	-48038	-70239	16653	-14681	12954	-11939	5+502-	-52800	256543 267345 607614 177117 602514
S PSIA(EXT),COAL DER. B.G UTILITY COST SAVING FUEL DOLLA SAVINGS RATIO \$000	-0.034	-0.169	-0.032	-0.047	0.074	0.024	0.073	0.145	0.135	0.056	-0.070	-0.014	-0.05+	-0.030	-0.017	-0.030	-0.071	-0.017	0.001	-0.036	0.001	-0.021	-0.035	-0.070	
PSIA(EXT UTILITY FUEL SAVINGS	59.6	4.5	27.2	5.5	4.0	20.6	29.7	217.9	÷.09	36.2	11.1	5.2	5.6	10.3	4.	1.4	45.0	57.1	167.7	12.1	1.61	2.0	17.2	19.5	3 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
SS LEVEL JPBINE,61 TOTAL FUEL SAVINGS	15.0	2.3	13.7	1.8	1.8.1	7.0	14.7	112.0	30.6	52.3	-4.3	1.7	1.0	3.0	÷ 	0.5	21.2	7 7	149.0	4.0	7.8	1.3	5.6	ن ن ن	8000 8000 000 000 000
	0.143	0.057	0.173	0.017	0.161	0.059	0.132	0.216	0.198	0.078	-0.039	0.010	0.021	970.0	0.072	0.317	±€0.0	0.035	0.036	0.036	0.032	600.0	0.035	0.031	
CTAS GENERAL SUBBARY - FPO NO. 7 ADVANCED TECHNOLOGISTEAN FUEL ENER INDUSTRY SAVINGS RATIO	NO.01 MEAT PACKING	HO.02 BARING	HO. 03 MALT BEYERAGE	MO.04 WOVEN FARRIC MILL	HO.05 SAM MILL	MO.06 HEWSPRINT MILL	RO.07 WPITING PAPER MILL	NO.08 CORPUSATED PAPER	NO.09 EOY EOAPD	KO.10 CHLCRIME	(3.11 AUBITHA	NO.12 LCM DEBS, POLYETHYL	RO.13 HI DERS. POLYETHYL	MO.14 POLYVINIL CHLOPIDE	kO.15 STAPENE-BUI. PUS.	HO.16 HYLON	RO.17 STIPERE	NOLIB ETHY, ENE	NO.19 PETPOLEUM REFINING	HO.20 TIPES	MO.23 INTEGRATED STEEL	HO.24 COAF IFON FOUNDRY	MOLOS COPPER	AO.26 FOTOP VEHICLE	CATTRICS SATIRISS ICAS SAM COST & E

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY -

***************************************	3	GENERALIO	COSEMERATION TECHNOLOGY ALTERNATIVES STODY NATIONAL SUBMERY	IECHMOLUGY ALIERA NATIONAL SUNMARY	ALIVES SI	-				
TEAR : 1590 RO. 7 ADVANCED TECHNOLOGY,STEA	STEAN TUBBINE, 615 PSIACEXT), COAL DER.	PSIACEXT	I),COAL DER	. 8.6.	S ***	*** STRATEGY OPTIMUM	TIMUM			
CATEGD31	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BTU	COST	SAVINGS DOLLARS \$000	CAPITAL COST \$000		ELANT	EMISSIONS SAVINGS TONS PER 'EAR LANT UTILITY TI	£	S  TOTAL
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	) ; ! ! !	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1	1			:	
TOTAL A!!	1818	3456		1073900	45267536	36	-1568255	55 3751165	165	2182917
	1593	3341		1393036	43618128	28	-1442381		7734	2185359
COST SAVINGS CASES ONLY	1359	5403		2828552	27693312	12	-954266	56	7352	1693090
EMISSIONS SAVINSS CASE CHLY	152	<b>6</b> :3		395983	3340990	06	36794		96501	133294
FUEL & COST SAVINGS CASES	1,259	2403		2555292	27693312	12	-954266	56	7352	1653090
FUEL, COST & EMISSION SAVING	152	68		305083	3340590	06	36794		96501	133294
		HAT.	HATIONAL FUEL SAVINGS SUMMARY	SAVINGS 5	UMHARY					
			FUEL SAVINGS	;	10**12 BTU	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	;			
CATEGORY	NATUPAL PE GAS DI	PETROLEUM DISTILLATE	PETROLEUM EOILER FUEL	GAS D	COAL DERIVED DISTILLATE	BOILER FUEL	COAL	OTHER SAVINGS	TOTAL FUEL	
	; ; ; ; ; ; ;	1 1 1	;	1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			ļ
LITE PLUS UTILITY			•	•	•		4	1		4
TOTAL ALL	14054	-425	2609	0	0	21622-	2522	7612	• :	9891
FUEL SAVINGS CASES ONLY	14231	-17	5636	0 (	۰ ۵	1+522-	9212	1612	9 :	1883
COST CAVITAGE CARES CRES	5045 0	<b>3</b> C	7 A A	•	<b>&gt;</b> c	16411-	710	14/4	-	1557
CHIBOLOGIC SAVINGS CHOC OURS	F114	0 0	3455	o	<b>.</b>	-11491	916	1974	. [	20
FUEL, COST & ENISSION SAVING	119	0	55	0	0	-358	323	13	7	152
IN SLUBING COAL FUEL CONVERSION										
TOTAL ALL	0	0	0	0	0	0	-1473	2197	7	57
FUEL SAVINGS CASES CHLY	0	0	0	0	0	0	-1360	2197	<b>6</b> 0	37
COST SAVINGS CASES ONLY	0	0	0	0	0	0	-1271	1974	7	32
ENISSICHS SAVINGS CASE CHLY	0	0	0	0	0	0	19	13		74
FUEL & COST SAVINGS CASES	0	0	0	0	0	0	-1271	1974	7	702
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	19	13		74

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01 ECS SIZE (MJ)	5.64	*50.0	1.51	0.07*	0.01*	10.36	65.9	29.31	21.96	1.68	2.26	0.67	0.34*	0.24*	0.83	0.15*	0.93	2.63	1.05	#Z+.0	7.42	0.57*	0.38*	0.70	
 	13597	2117	12325	-155	13579	7640 1	19107	106858 2	37760 2	33419	-4231	46	247	620	859	290	22838 2	-10284	-26638 1	1312	15379	-2435	1131	1559	246940 233131 215864 46999 222464 33419
EHISSIONS SAVINGS TONS PER YEAR UTILITY TO	28311	4637	25912	2565	4757	13942	52566	124764	38809	19692	5107	9265	2036	2629	2235	464	46947	16628	158643	4280	39464	2715	6257	7128	536257 534035 537400 24449 524642 19692
LANT	-14714	-2519	-13587	-2720	8823	-6303	-3759	-17907	-1049	13727	-9338	-4890	-1783	-2209	-1376	-509	-24109	-26912	-165280	-2967	-24085	-5150	-5126	-5569	-339316 -255354 -321535 -32550 -302157
*** STRATEGY OPTIMUM PITAL EMISSIONS COST SAVINGS - \$000 RATIO P	0.153	0.091	0.201	-0.002	0.121	990.0	0.162	0.249	0.281	0.051	-0.048	0.000	0.003	900.0	0.059	0.010	0.151	-0.013	-0.009	0.013	0.003	-0.018	0.008	0.010	
*** STRA' CAPITAL COST \$000	1226424	297098	835837	356617	2486733	215522	676450	2224150	750273	779689	181734	330126	152559	250641	106699	62070	613294	1231640	5607202	369315	3525345	188728	480748	559562	23516112 19292192 17209360 3266402 16503383
B) SAVIHGS DOLLARS \$000	1142	-21223	25162	5204	-104582	49123	79157	542957	157015	293251	34755	6830	21751	42963	9332	8016	159509	1541897	5101699	53511	-93674	95238	78106	55625	8144527 8101379 8364005 193568 8227104 293251
,COAL(AF) COST RATIO	900.0	-0.149	960.0	0.013	-0.204	0.113	0.162	0.289	0.273	0.118	0.079	0.011	0.077	0.102	0.136	0.075	0.235	0.380	0.346	0.132	-0.009	0.171	0.133	0.073	
PSIA(EXT),COAL(AFB) UTILITY COST SA FUEL D SAVINSS RATIO	26.5	4.3	24.5	2.5	4.4	13.2	18.2	117.3	36.6	18.2	4.8	4.6	1.9	5.6	2.1	0.7	43.9	16.2	148.2	4.0	36.9	2.5	5.8	6.7	546 498 501 23 469 18
ESS LEVEL TUPBINE,615 Y TOTAL UFUEL SAVINGS S	10.3	1.5	9.1	0.0	17.5	6.1	16.8	111.2	40.1	43.8	-6.3	-0.2	0.3	1.0	6.0	0.3	17.8	9.8	21.7	1.5	-5.8	-1.7	5.0	2.1	300 314 206 61 295 44
	0.093	0.038	0.119	000.0	0.156	0.051	0.151	0.220	0.259	990.0	-0.057	-0.001	0.003	600.0	0.046	0.010	0.079	0.003	900.0	0.014	-0.001	-0.011	0.012	0.010	
CTAS GENERAL SURBARY - FROC HO. 8 ADVARCED TECHHOLOSY,STEAM FUEL ERERC IMDUSTRY SAVINGS RATIO	NO.01 REAT PACKING	HO.02 BAKING	HO.03 MALT BEVERAGE	HO.04 WOVEN FAERIC MILL	NO.05 SAW MILL	HO.06 HEWSPRINT MILL	HO.07 KPITING PAPER HILL	NO.03 CORRUGATED PAPER	HO.09 BOX BOARD	NO.10 CHLOPINE	RO.11 ALUMINA	HO.12 LOW DEMS. POLYETHYL	RO.13 HI DEMS. POLYETHYL	NO.14 POLYVINAL CHLORIDE	POLIS STEPERE-BUT, RUB.	F.O. 16 BELOH	POLIZ STIPENE	NO.18 ETHLENE	NO.19 PETROLEUM REFINING	MJ.20 TIRES	NO.23 INTEGRATED STEEL	HO.24 GRAY IRON FOUNDRY	HO.25 COPPER	MO.26 MOTOR VEHICLE	TOTAL ALL FULL SACHOS CASES ONLY COST SACHOS CASES ONLY ENISSIESS SAVINES CASE ONLY FULL & COST SAVINES CASES FUEL, COST & ENISSIEN SAVINS

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- COSENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUBBARY

TECHNOLOG1,STEAH TURBINE,615 PSIA  TOTAL UTILI FUEL SAVINGS SAVIN. 10*12 BTU 10**1.  CASE ONLY 1331 1331 1331 1331 1331 1331 1331 133	VINGS 5030 8030 7813580 873580 8751584 4551584 4551584 4551584 4551584 4551584 659749 659749	CAPITAL  S CGST \$000  1	LAN 114 937 949 30	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T 1114912 2210569 1 1937714 2052167 1 47795 2052167 1 47795 2054163 1 30883 44303	THGS TOTAL TOTAL 1095658 1114455 101215 101215 1084367 75186
TOTAL UTILITY FUEL SAVINGS SAV	2011ARS \$030 2030 20130S30 28733S30 28751S84 459204 27974S32 659749 659749 659749 659749 659749 659749 659749	AAL 000 000 000 000 000 000 000 000 000	30 4 4 8 8 4 4 8 8 4 8 8 8 8 8 8 8 8 8 8	115SICHS SAVI OTILITY  12 2210569 14 2052167 15 2116919 15 2116919 15 2116919 15 2116919 15 2116919	9
1250 2 1331 1 1224 1 1224 1 1254 1 1294 1 1294 1 1294 1 1294 1 1294 1 1294 1 1294 1 1294 1 1294 1 1294 1 1294 1 1294 1 1294 1	28130530 2773580 2773580 28551584 459204 2797492 659749 VINGS 10** EEM COAL	8121 8121 83123 83723 83723 89516 0 -	-111491 -93771 -108082 -9775 -94975 3088	1	i !
1331 15 1224 1 1224 1 1234 15 VING 99 WATURAL PETROLE GAS DISTILL	27733580 28551584 27974532 659749 659749 CFUEL SAVINGS SU VINGS 10** LEUM COAL	3123 8775 2072 2072 99516 5412 U -	-9371 -10808 -10808 -9497 3088		
1224 1 132 ES 1294 1 VING 99 WATURAL PETROLE 6AS DISTILL	20551584 459204 27974932 659749 FUEL SAVINGS SU VINGS 10** LEUM COAL	8775 2072 2072 9516 5412 U U	-108082 4779 -94975 3088		
ONLY 13C ES 1294 D VING 99 VING 99 ATURAL PETROLE GAS DISTILL	459204 27974932 659749 FUEL SAVINGS SU VINGS 10** LEUM COAL	2072 9516 5412 VED -	4779 -94975 3086	-	
1294 B 99 NATURAL PETROLE GAS DISTILL	27974632 659749 659749 FUEL SAVINGS SU VINGS 10** LEUM COAL ER GAS DI	9516 5412 VED -	3088	0.7	
99 NATURAL PETROLE GAS DISTILL	659749 FUEL SAVINGS SU VINGS 10** EEM COAL	5412 U -	3088		
HATURAL PETROLE GAS DISTILL	FUEL SAVINGS SU VINGS 10** LEUM COAL ER GAS DI	U .	;		
			COAL	TOTAL OTHER FUE	JTAL FUEL
		FUEL	FUEL	SAVINGS	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
SITE PLUS UTILITY					
TUTAL ALL 14659 -425 6082			-21258	2197	1250
SES CHLY 12627 -17			-17819	1455	1331
			-16539	1520	1224
119 0	55 0	0	-56	13	132
12			-17301	1429	1294
0			-53	0	66
INCLUDING COAL FUEL CONVERSION					
14654 -425		0	-21259	2197	1250
12627			-17819	1455	1331
13173			-16539	1520	1224
113 0	55 0		-56	13	132
-17 50	0 220	0	-17801	1429	1294
164 0	0 25		-53	0	66

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01 EMISSIONS SAVINGS ECS TONS FER YEAR SIZE UTILITY TOTAL (M3)	207149 64401 11.43	36051 11216 0.29*	154998 60808 10.08	106920 33470 2.26	98163 27556 0.20*	1111332 34733 13.78	243760 76026 14.02	451534 136151 14.90	180516 57593 14.87	540318 195462 14.88	168323 53018 14.91	159056 38937 12.09	88954 27767 13.57	162008 50615 12.93	42277 13187 14.12	32238 10124 5.53	51639 12109 13.94	93092 3709 10.10	1524639 536493 14.95	209768 65503 14.05	514303 239296 14:14	79390 30111 111.47	302527 94217 11.28	332059 103855 12.05	595659 1976401 595659 1976401 1245843 499501
LANT	-142748	-24835	-134161	-73450	-70607	-76600	-167734	-315433	-130923	-345357	-135305	-120069	-61187	-111393	-29090	-22114	-39529	-89383	-968196	-143266	-275007	-49280	-203311	-228204	-3932194 -3932194 -746243
TEGY OPTIMENISSIONS SAVINGS RATIO	0.263	0.264	0.264	0.265	0.245	0.265	0.265	0.206	0.234	962.0	0.220	0.220	0.265	0.265	0.252	0.266	0.078	0.004	0.128	992.0	0.049	0.222	0.264	0.265	
*** STRATEGY OPTIMUM CAPITAL ENISSIGNS CGST SAVINGS -	1926085	217685	972945	625944	1499446	569305	1251716	2506193	1030431	2864160	931043	630318	906055	603110	232747	160460	378024	1321219	19935201	1229128	4893660	476099	1500045	2134145	39645683 39645683 6803723
SAVINGS DOLLARS \$300	-243937	-32500	-184334	-11299	-3563	10935	-161948	-210358	-104473	269200	-184268	-14335	-17251	-66720	-41074	-4164	-96341	-262111	-1186718	-159809	260835	40523	-206292	-296134	-2907173 -2907173 -2907173 531555 0
DIST. COST RATIO	-0.627	-0.223	-0.700	-0.028	-0.007	0.025	-0.331	-0.112	-0.132	0.103	-0.416	-0.022	-0.061	-0.158	-0.576	-0.039	-0.142	-0.065	-0.080	-0.395	0.024	0.073	-0.351	-0.391	1
COAL DER. UTILITY FUEL SAVINGS	193.7	33.7	182.3	6.66	7.16	105.7	193.8	404.5	177.8	499.1	175.9	148.6	63.0	151.5	39.4	39.1	48.3	9.06	1424.4	195.1	4.83.4	74.2	282.7	310.1	5537 5537 1159 0
ESS LEVEL HIGH SPEED,COAL DER Y TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS	109.7	19.0	103.2	56.6	47.5	9.65	109.2	237.2	4.00	318.4	91.5	69.2	47.0	65.9	22.5	17.0	25.1	54.0	1000.9	110.7	5.035	51.9	160.3	176.0	3332
ARY - FROCE CGC.DIESEL: FUEL ENEPGY SAVINSS RATIO	0.433	0.323	0.440	0.436	0.423	444.0	77.7.0	0.327	0.332	925.0	0.359	0.397	0.445	0.445	0.415	9,445	0.110	£+0.0	0.192	0.445	0.057	0.335	0.445	0.414	
CTAS GENERAL SUBBARY - FROC HO. 9 ADVAHCED TECHNOLGGRIDIESEL FUEL ENEFG INDUSTRY SAVINSS RAYINS	HO.01 MEAT PACKING	HJ.02 EAKINS	HO.03 HALT BEVERAGE	HO.04 HOVEN FAERIC MILL	NO.05 SAW MILL	HO.05 HEUSPPINI MILL	HO.07 WRITING PAPER MILL	HO.08 CORRUGATED PAPER	HO.09 BOX ECAPD	HO.10 CHLORINE	HO.11 ALUMINA	NO.12 LOW DERS. POLYETHYL	NO.13 HI DEMS. POLYETHYL	ED.14 FOLFWINEL CHEORIDE	10.15 STIPENE-BUT, PUB.	ROLLE MYLON	NO.17 STYFENE	KO.18 ETHILENE	HO.19 PETPOLEUM REFIMINS	HO.20 TIRES	HO.23 INTEGRATED STEEL	NO.24 SRAY IFON FOUNDRY	NO.25 COPPER		TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENTESTORS SAVINGS CASE ONLY

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SIMPARY

			NATIGNA	NATIONAL SUNMARY						
HO. 9 ADVANCED TECHNOLOGY, DIESEL, HIGH SPEED, COAL DER.	L,HIGH SPEE	D,COAL DEF	e. Dist.		S * *	*** STRATEGY OPTINUM	TIHUM			
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 ETU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 8	C05T	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSICHS SAVINGS TOMS PER YEAR PLANT UTILITY TO	SAVING YEAR ITY	SS TOTAL
1011	11247	1 0	1	-1126.496.2	111768762	1 C	7441828	•		A
				100 CO 111	1001101	7 :				
FUEL SAVINGS CASES DNLY	11267	-		-11763962	131758752	52	-14641525		21274096	6632560
COST SAVINGS CASES DRLY	2201	3757		1345982	25203248	64	-2536764		4006001	1472239
EMISSIONS SAVINGS CASE ONLY	٥	0		٥		0		0	0	
FUEL & COST SAVINGS CASES	2201	375		1345882	25203248	9,4	-2536764		4009001	1472238
FUEL, COST & EMISSION SAVING	0			0		. 0			•	0
		- - - - - - - - - - - - - - - - - - -	NATIONAL FUEL SAVINSS SUMMEN	SAVIESS	OC IAR 1					
		- XX	ומניאר בסבר	CONTACC	1 24 1 1 50					
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	E	FUEL SAVINGS		10**12 BTU	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	;			
CATEGORY	NATURAL P	PETROLEUM DISTILLATE	PETROLEUM EOILER	GAS	COAL DEPIVED DISTILLATE	BOILER	COAL	OTHER	TOTAL FUEL	
			FUEL			FUEL	FUEL	SAVINGS		
	1		1	1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!		!
SITE PLUS UTILITY										
101AL ALL	14654	-425	6032	0	-13513	-15840	18213	2197	=	11267
FUEL SAVINGS CASES ONLY	14654	-405	6082	0	-13613	-15940	16213	2197	Ξ	11267
COST SAVINGS CASES CHLY	1616	0	003	0	-2401	96-	1352	729	2	2201
ENISSIGNS SAVINGS CASE ONLY	0	o	0	0	0	0	0	0		•
FUEL & COST SAVINGS CASES	1816	0	800	0	-2401	96-	1352	729	2	2201
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0		•		•
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	•	0	0	0	0	0	5152	2197	7	7349
FUEL SAVINGS CASES CHLY	0	0	0	0	0	0	5152	2197	7	7349
COST SAVINGS CASES ONLY	0	0	0	0	0	•	1523	729	2	2252
EMISSIONS SAVINGS CASE CHLY	0	0	0	0	0	0	0	0		0
FUEL & COST SAVINGS CASES	0	0	0	0	0	0	1523	729	2	2252
FUEL, COST & EMISSION SAVING	0	0	0	0	0	•	0	٥		0

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01 ECS \$12E AL (184)	-95847 13.15	27693 0.324	135663 10.05	-93190 2.40*	-67605 0.20*	-67781 28.60	186822 25.29	572231 28.48	228011 26.91	-450255 24.90	265860 25.91	-120467 18.32	360721 27.16	-633202 24.96	-18224 8.71	-16834 3.88*	-37370 20.92	-74532 15.12	-1959539 28.14	471919 23.67	-306130 24.94	-58259 17.30	-700875 24.31	-795507 25.58	-7749730 -7749730 -518036 -518036
EMISSIONS SAVINGS TONS PER YEAR UTILITY TOTAI	158700 9	40570 -2	193190 -11	83275	9- 69165	9- 26296	273220 -16	859222 -57	339462 -22	540819 -45	323057 -26	159056 -13	439513 -36	771734 -6	- 81652	22168 -	51475 -:	102008	2911338 -19	578690 -4	521814 -3(	79390	653254 -7	674292 -7	1100
LANT	-254546	-68463	-328853	-176465	-165768	-164073	-460042	-1431453	-567473	520166-	-588917	-285524	-800234	-1404936	-44145	-39002	-86845	-176540	-4869877	-1050609	-827945	-137649	-1559129	-1769799	9515511- 9515511- 9515511- 9516511-
SIRATEGY OPTIMUM L ENISSIONS SAVINGS RATIO P	-0.489	-0.593	-0.594	-0.509	-0.600	-0.533	-0.590	-0.535	-0.574	-0.681	-0.707	-0.714	-0.792	-0.791	-0.507	-0.603	-0.240	-0.034	-0.351	-0.766	-0.063	-0.430	-0.763	-0.769	
*** STRAT CAPITAL ( COST 8	5615974	740687	1609125	1661352	3065711	853584	1212023	7004742	2776376	5359193	2689016	1481600	3567739	6410390	281015	543719	551835	1395629	2641792	5820113	7330640	629429	7222605	10518308	4 4000
R CRD SAVINGS DOLLARS \$000	-143033	-69359	-192779	80686-	-105373	46000	-150090	-416754	-190783	131419	+29264-	-30315	-632226	-1151250	-26890	-4352	-80744	15658-	-2306007	5609+6-	-120937	-2070	-1267555	-1700715	-10043423 -10043423 -10043423 177419 177419
/CO EOTLE COST RATIO	-0.300	-0.406	-0.732	-0.250	-0.206	0.106	-0.319	-0.222	-0.332	0.053	-1.091	-0.057	-2.251	-2.723	-0.372	10.0-	-0.119	120.0-	-0.156	-2.336	-0.011	-0.004	-2.156	-2.245	
COAL DERIVCO EOTLER GSD UTILITY COST SAVIA FUEL DOLL SAVINGS RATIO \$00	148.4	37.9	180.6	77.8	91.7	91.4	217.2	607.7	320.1	499.1	301.7	143.6	410.3	701.6	24.2	20.7	48.1	99.3	2719.9	540.8	4.784	74.2	602.0	909.6	9781 9781 5°1 5°1 5°1 5°1
SS LEVEL LCH SPEED TOTAL FULL SAVINGS	77.0	15.1	63.6	21.6	35.4	39.4	9.00	344.4	133.3	200.4	61.5	36.7	85.0	149.8	<i>3</i>	6.3	19.6	74.7	1200.9	116.4	103.7	27.6	172.3	ĽÒ	ାଉଁ ଦିନ୍ତି ଅନ୍ତ
ABL - PEGGE CGY,DIESLL, FUEL ENCROS SAVINGS RATIO	0.375	0.244	0.295	0.200	0.315	0.328	100	0.311	0.331	0.330	0.162	0.210	0.196	0.155	0.241	0.214	0.085	0.059	761.0	0.196	0.027	0.178	961.0	0.190	
CTAS GENEPAL SUNDARF - PEG HO.10 ADVANCED TECHNOLGGY,DIESE FUEL ENCP INDUSTRI SAVINGS RATIO	HO. GI HEAT PACKINS	HO. 02 BAKINS	HO. 03 MALT BEVERAGE	NO.04 HOVEN FARRIC HILL	NO.05 SAW NILL	HO. OS NEWSFRINT MILL	KO.O7 WRITING PAPER MILL	HO.03 CCRRUGATED PAPER	NO.09 BOX FOARD	NO.10 CHLCRINE	E.J. II ALUIINA	AJ.12 LGW DENS. POLYETHYL	NO.13 HI DENS. FOLYETHYL	HOLLS POLIVINAL CHLOPIDE	RO.15 STARENE-BUT. RLB.	E3.15 HYLCH	NO.17 STRPENE	NO.13 ETHYLENE	KO.19 PETROLEUM REFINING	MOLEO TIRES	HO.23 INTECPATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 COPPER	CO VEHICLE	SAVINGS CASES ONLY SAVINGS CASIS CHLY ICAS SAVINGS CASE C A COST SAVINGS CASE COST & EMISSICH SAV

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	VINGS AR TOTAL	* * * * * * * * * * * * * * * * * * * *	4 -26473424				-202013	0			TOTAL FUEL			1001	11054	1035	0	1030	•	711.1		1316	266	0	286	0
	EMISSIONS SAVINGS TONS PER YEAR - PLANT UTILITY T		35629504				2647519				TO DTHER SAVINGS	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	,	1612	2197	•	<b>o</b> (	>	0		1613	2197	•	0	•	0
INUM	EMI TO PLANT		-62102864	-62102864	-4667651		-4667651	0		!	FUEL		1	31578	31578	2780	0	2 /80	ဝ	į	100-	-881	286	0	286	۰
*** STRATEGY OPTINUM			.9	.,	. 0	0	0	6			 BOILER FUEL		į	-43032	-43032	-2253	C	-2253	0	•	<b>&gt;</b> •	0	0	0	•	0
*** 51	CAPITAL COST \$000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	\$01.998CFF	332566304	00504053		24740400		HITTER		COAL DEPIVED DISTILLATE	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		•	0	•	0	•	0	•	<b>-</b>	0	•	0	0	0
GRD	COST SAVINGS DOLLARS \$000	***************************************	A0045777-	137.47.45.09	979175	0	979175	0	HATIONAL FUEL SAVINGS SURITRY	1000 1	64S			0	0	0	0	•	0	•	<b>.</b>	0	0	0	0	0
veb BoileR		•	'	•					ONAL FUEL	FUEL SAVINGS	PETPOLEUM BOILER FUEL	, , , , ,		6082	£095	223	o	223	•	•	<b>-</b>	0	0	0	0	0
COAL DERI	UTILITY FUEL SAVINGS 10+#12-BTU		10211	10201	10070	0	2462	O	HATI		OLEUN ILLAT			-425	-405	0	0	0	0		0	0	0	0	0	0
ESEL, LOW SPEED, COAL DERIVED POILER GRD	TOTAL FUEL SAVINGS 10*412 BTU	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	23011	12011	1016	0	1035	6		1	HATUPAL PE GAS DI			14654	14654	೧೯೮	0	280	0		0	0	0	0	0	0
TESR : 1990 1,3.10 ADVANCED TECHNOLOGY,DIESE	CATEGOPY			TOTAL ALL	TOTAL MENTION CANDS CALL	TOTAL STREET STREET STREET	FIG. 1 DOST SAVINGS CASES	FULL COST & EMISSION SAVING			CATEGOPI		SITE PLUS UTILITY	TOTAL ALL	FUEL SAVINGS CASES CHLY	COST SAVINGS CASES CALY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	INCLUDING COAL FUEL CONTERSION	101:1 411	FUEL SAVINGS CASES CHLY	COST SAVINGS CASES ONLY	PHO SECTIONS CASE ONLY	SISSI COURT SAUTUS CASES	FUEL, COST & EMISSION SAVING

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ECS SIZE (PW)	23 12.55	50 <b>0</b> .47*	26 10.07	29 10.10	#03.0 Z6	39 25.62	22 26.31	44 28.46	13 28.09	84 22.89	64 26.13	00 18.30	14 9.34	51 6.68*	177 14.06	43 3.88*	67 20.90	33 15.26	121 28.07	36.9 54	152 28.47	139 17.33	71.8 8.17	110 25.55	784 784 764
1168  TOTAL	-104123	05165-	-164026	-429329	-77-97	-91539	-331122	-695244	-289713	-44366	-297964	-140900	-50114	-67351	-35377	-19843	-44767	-85233	-2324021	-82945	-345452	-66139	-123918	-86-010	-7242921 -7242921 -5260784 -5260764
ENISSIONS SAVINGS TONS PER YEAR UTILITY TO	112151	58651	193171	471520	93163	96292	396558	961959	353268	540319	326152	159056	57565	78762	41710	22168	51309	103090	289882	97580	521814	79390	144637	974357	to to to to
LAHT	-255335	-107601	-357197	-900850	-175660	-187881	-727650	-1552440	-642980	-933903	-624136	-299956	-107679	-146132	-77037	-41010	-96076	-183322	-5222841	-160525	-867266	-145529	-268555	-1858367	-16015705 -16015705 -11318532 0 -1131E532
STRATEGY OPTIMUM L EMISSIONS SAVINGS - RATIO P	-0.551	-0.754	-0.718	-0.675	-0.688	-0.783	-0.752	-0.653	-0.705	-0.670	-0.786	-0.795	-0.683	-0.624	-0.693	-0.673	-0.283	960.0-	-0.417	-0.613	-0.071	-0.433	-0.624	-0.855	•
CAPITAL COST \$000	2653305	1247913	1914412	5951560	3477824	1015481	3521532	7592941	3100187	5+21266	2893547	1556150	65+123	1019312	926524	292137	614669	1543794	290316+3	1316564	7966064	370176	1722416	11277465	69721616 69721616 69721616 69721616
SAVIH:SS DOLLAPS \$000	10163	5-002-	-47336	-297438	-34103	135201	57339	310018	93277	739115	-117903	135335	99295	62227	-11671	17103	-39705	26.33	450016	23520	135.929	79455	51709	-616649	1401352 1401352 2630717 2630717 2630717
- <b>-</b>	930.0	-0.491	-0.162	-0.750	-0.007	0.312	0.117	0.167	0.171	662.0	-3.266	0.212	0.165	0.147	-0.161	0.100	-0.059	0.007	0.031	0.058	3.636	0.1.2	0.038	-0.814	
COAL(FULVERIZED UTILITY COS FOLL SAVINGS RATIO	141.8	54.8	100.6	4.40.6	91.7	#   15	515.3	604.8	333.1	430.1	364.6	143.6	53.7	73.7	33.9	20.7	0 9	160.4	2,80%2	2.16	4.87.4	74.2	135.2		8143 8143 0079 0070
i)	72.8	16.4	51.8	84.5	33.1	32.1	; ;	265.3	107.1	131.8	57.0	ω •	13.9	6.03	11.3	6.5	15.1	73.2	es †	20.50	115.7	25.3	38.7		26345 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
ARY - PROCES CSTANIESELA FUEL ESTOSY SAVINGS RATIO E	0.366	600.0	222.0	0.150	0.245	0.2:7	0 256	0.243	0.253	0.272	0.149	0.1%	0.132	0.162	0.211	0.003	0.000	3,059	3.165	0.162	930.0	0.167	281 0	0.175	
CTAS GENERAL SURMARY - PROCESS (ENEL MOLIN ADVANCED TECHNOLOSHADIESEL,LOM SPEE FUEL ENCOSY TOTAL SAVINGS FULL RATIO SAVINGS	HO. 01 HEAT PICKING	1.0, 02 EAS 21.5	HO.03 MALT ESVEPAGE	HOLEW FARPIC MILL	113.65 S4W MILL	EOLES HEISPPINE HILL	ACTOR WRITING PAPER MILL	HOLGS COMPUSATED PAPER	HO.03 FOX ESTOD	FOLIO CHECPTRE	5.0.11 ALIPTRIA	10.12 LCM DERS. FOLVETHIL	40.13 HI DEMS, FOLYETHYL	HOLIN TOLINITARE CHLORIDE	HO.15 STIPERE-EUT, PUS.	NO 16 HYLON	KOLIZ STIFFINE	1,3,18 ETHYLENE	HO.19 PETFOLEUM REFINIS	HOLDO TIPES	HO.23 INTEGDATED STEEL	NO.24 CPAY IRON FOUNDRY	MOLDS CORPER	LE E	TOTAL ALL FOLL SAVINS CASES CHLY COST TAVINS CASES ONLY EMISSIONS SAVINSS CASE CHLY FULL & C ST SAVINSS CASES FULL & C ST SAVINSS CASES FULL & C ST SAVINSS CASES

- COCENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

			301101							
TESR : 1930 NO.11 ADVANCED TECHNOLOGY, DIESEL, LOW SPEED, COAL(FULVERIZED)	EL, LOW SPEED	COALCFULY	(ERIZED)		[S ***	*** STPATEGY OPTIMUM	TIMUM			07
CATEGORY	TOTAL FUEL SAVINGS 10**12 BTU	UFILITY FUEL SAVINGS 10**12 BTU	ร ปรอว	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	ENISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	SAVINGS YEAR TY TOTAL	
	1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1 1 1 1 1			1			
101At ALL	8727	27737		6164291	317694720	0.2	-56138960			
FUEL SAVINGS CASES ONLY	9727	27737		6164291	317694720	0.	-56138960			
COST SAVINGS CASES ONLY	1351	3006		1170306	001100763	<u>,</u>	07604474-	0 525001/0	74146141- 0/1	
FUEL & COST SAVINGS CASES	7327	21006		4249296	237007136		-42440320	20 23286176	176 -19154192	
FUEL, COST & EMISSION SAVING	0	0		0		0			0	
		NAT	HATIONAL FUEL SAVINGS SUPMARY	SAVINGS SI	UPPLARY					
	HATURAL PI	FU ETROLEUM	HATURAL PETROLEUM PETROLEUM	; ; ; ; ;	10**12 BTU COAL DERIVED		;		TOTAL	
CATEGORY	GAS D	DISTILLATE	BOILER FUEL	GAS D	DISTILLATE	BOILER FUEL	COAL FUEL	OTHER SATTNGS	FUEL	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1	!	1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
SITE PLUS UTILITY										
101AL ALL	14654	-455	6032	0	0	-16144	2364	2197	8727	
FUEL SAVINGS CASES ONLY	14654	-405	6032	0	0	-16144	2364	2197	8727	
COST SAVINGS CASES ONLY	137.45	0	5445	G	0	-15306	1351	2091	7327	
FHISSICHS SAVINGS CASE ONLY	0	0	0	0	0	0	0	0	0	
FUEL & COST SAVINGS CASES	13746	o	5445	0	0	-15306	1351	2091	7327	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	0	0	0	0	
INCLUDING COAL FUFL CCHVERSION										
TOTAL ALL	1465	0	625	0	0	0	5396	2197	9637	
FUEL SAVINGS CASES ONLY	1465	0	579	0	C	0	5396	2197	9637	
COST SAVINGS CASES CHLY	1446	0	574	0	0	0	3983	2091	8118	
EHESSICHS SAVINGS CAGE ONLY	0	0	0	0	0	0	0	0	0	
FUEL & COST SAVINGS CASES	1466	0	574	0	0	0	3933	2091	8118	
FUEL, COST & ENISSION SAVING	0	0	0	0	0	0	0	0	c	

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01 ECS SIZE (NA)	8.68	0.11*	5.11	*96.0	0.01*	68.75	28.42	78.94	7.78	49.4	1.50	8.17	9.23	6.59	7.35	3.84	0.88	5.18	65.4	0.70	98.42	7.23	8.57	5.26	
 TAL	76452	10144	72237	31390	15851	57534 6	90292	436546 7	119730 77	362090 4	64567 41	1 26018	37952	57440	16085	13733	36588 2	56491	2413859 84	1 77777	367524 9	50441 1	111630	123143 1	4760833 4790638 4677617 15951 4677617
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	104988	14136	09066	45717	9029	96292	124062	905009	166591	540819	95887	159056	57565	78782	22097	22168	52391	95801	5845384	106433	521814	79390	153756	168397	0.0000000000000000000000000000000000000
LANT	-28536	-3992	-26823	-14327	6822	-38708	-33770	-163858	-45261	-178728	-31320	-77959	-19613	-21341	-6012	-8435	-15803	-39311	-528535	-28657	-154291	-28949	926:5-	-45754	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
*** STRATEGY OPTIMUM PITAL ENISSIONS COST SAVINGS - \$000 RATIO P	0.552	0.448	0.553	0.312	0.143	0.504	0.553	0.553	0.552	0.558	0.445	0.462	0.528	0.548	0.513	0.501	0.251	0.071	0.452	0.554	0.076	0.339	0.553	0.553	i
*** STRA CAPITAL COST \$000	540468	154182	329025	278444	1235238	213281	337662	1414990	409413	1154803	217390	361172	157032	250460	71126	71069	219536	1004082	8994074	334015	3507262	227519	429951	554501	
. EOILER GRD COST SAVINGS DOLLARS TIO \$000	50630	-3806	31600	41518	32131	74922	118762	393603	130011	630487	33156	37120	61435	113227	74.96	17629	-16442	-97426	2138542	91735	694427	62569	135626	119653	O - C1 -> C1
ETR. BOIL COST RATIO	0.146	-0.027	0.120	0.105	0.063	0.172	0.243	0.210	0.226	0.254	0.075	0.053	0.219	0.268	0.104	0.165	-0.024	+39.0-	0.145	0.226	0.065	0.125	0.231	0.158	
T FIRED.PI UTILITY FUEL SAVINGS	98.1	13.2	92.6	42.7	9.4	91.4	98.6	564.4	155.6	499.1	89.6	148.6	53.7	73.7	20.0	20.7	0.65	93.3	2748.9	99.5	487.4	74.2	143.7	157.7	5925 5925 6975 8 8 8 709
ESS LEVEL PEINE, DIRECT Y TOTAL U FUEL SAVINGS	56.7	7.4	53.4	21.8	19.6	32.3	56.3	322.8	88.6	236.5	43.6	30.6	24.7	42.6	12.0	6.1	29.3	63.5	2070.2	57.5	241.4	33.0	83.1	91.2	3730 3730 3630 3630 3630
Y - PPOCE Y,GAS TUR EL ENERGY SAVINGS RATIO	0.365	0.185	0.368	0.202	0.175	0.269	0.373	0.373	0.372	0.354	0.258	0.175	0.323	0.370	0.341	0.279	0.128	0.051	0.317	0.376	0.053	0.213	0.376	0.335	
CIAS GENEPAL SUMMARY - PPOCESS LEVEL HO.12 ADTANCED TECHNOLOGY,GAS TUPELHE,DIRECT FIRED.PETR FUEL EHERGY TOTAL UTLLITY INDUSTRY SAVINGS FUEL FUEL RATIO SAVINGS SAVINGS RA	NO.01 HEAT PACKING	NO.02 BAKINS	HO.03 MALT BEVERAGE	HO.04 HOVEN FABRIC MILL	HO.05 SAU MILL	MO.06 NEWSFRINT MILL	40.07 KRITING PAPER NILL	HO.03 COPRUGATED PAPER	KO.09 BOK BOARD	HO.19 CHICRINE	ED.11 ALUMINA	KO.12 LOW DEMS. POLYETHYL	KO.13 HI DEKIS. POLNETHYL	KOLIA FOLIVINIL CHEGRIDE	HO.15 STAPEME-BUT. RUB.	RO.16 HTLON	MOLL? STHRENE	HO.18 ETHILERE	MO.19 PLTRULEUM / THG	KO.CO LIPES	HOLES INTEGRATED STEEL	MO.24 GRAY IRON FOUNDRY	NO.25 COPPER	MO.26 MOTOR VEHICLE	TOTAL ALL FIEL SAVINSS CASES ONLY COST SAVINSS CASES CHLY ENTSSICES SAVINSS CASE ONLY FOLL & LOST SAVINSS CASES FULL COST & EMISTION SAVINS

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY -	HATICHAL SUINIARY
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			HATICHAL SUINARY	SUITITARY					
YEAR : 1990 HO.12 ADVANCED TECHNOLDGY,GAS :	TUPBINE, DIRECT FIRED, PETR. BOILER GRD	r FIRED,P	ETR. BOILER	GRD	*** STRATEGY OPTINUM	OPTIMUM			07
CATEGORY	FUEL FUEL SAVINGS SAVINGS SAVINGS STU 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 ET	C05T S	SAVINGS DOLLARS \$000	CAPITAL COST \$000	PLANT	ENISSIONS SAVINGS TONS PER YEAR LANT UTILITY T	SAVINGS YEAR TY TOTAL	
			İ		1 3 1 1 1 1 1		i	i	
TOTAL ALL	10403	17861	-	13718579	64989072	-5378184		_	
FUEL SAVINGS CASES ONLY	10403	17361	-	13713579	64959072	-5378184	184 19332734	_	
COST SAVINGS CASES CHLY	2185	16975	-	14502177	56516128	-5024937	937 18+14464	133	
ENISSIONS SAVINGS CASE ONLY	3.8	16		61589	2367717	13(	13077 17	17306 30383	
FUEL & COST SAVINGS CASES	9817	16975	-	14502177	56516123	-5024937	937 18414464	464 13389516	
FUEL, COST & ENISSIGH SAVING	33	16		61588	2367717	13(		17306 30383	
		NATI	HATIONAL FUEL SAVINGS SUMMARY	SAVINGS SI	JHHARY				
	NATURAL PE	PETROLEUM	FUEL SAVINGS	10*	10**12 BTU	1 1 1		TOTAL	
CATEGORY		14.1	EOILER FUEL			COAL FUEL	OTHER SAVINGS	FUEL	
	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		!			!	; ; ; ;	
SITE PLUS UTILITY									
TOTAL ALL	14654	-425	-55069	0		16646	2197	10403	
FUEL SAVINGS CASES DRILY	14654	-425	69000-	0		_	2197	10403	
COST SAVINGS CASES OHLY	7667	-425	-15:05	0	0	15708	2153	9817	
EHISSIONS SAVINSS CASE ONLY	15	0	-10	0	0		13	38	
FUEL & COST SAVINGS CASES	7687	-425	-15305	0	0	157	2153	9817	
FUEL, COST & EMISSION SAYING		0	-10	0		61	13	38	
INCLUDING COAL FUEL CONVERSION									
TOTAL ALL	14054	-425	-22669	0		16646	2197	10403	
FUEL SAVINGS CASES CHLY	146.54	-425	-22669	0			2197	10403	
COST SAVINGS CASES CALY	7007	-425	-15305	0		15703	2153	4817	
FRISSICHS SAVINGS CASE ONLY	15	0	-10	0	0	61	13	38	
FUFL & COST SATINGS CASES	7687	-425	-15305	0		15708	2153	9817	
FUEL, COST & EMISSION SAVING	15	0	-10	0	0	19	13	38	

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01 ECS SIZE (FU)	89.8	5 0.11*	9 5.11	*96.0	*10.0	68.75	28.42	78.94	1 77.78	44.64	1 41.50	18.17	9.23	6.59	3 7.35	3.84	20.88	7 15.18	4 84.45	0 10.70	5 98.42	17.23	5 8.57	3 15.26	
INGS  TOTAL	74121	9835	2004	30226	16722	54010	87526	423112	116011	345970	61831	73604	36219	55696	15593	12974	35822	54197	2414634	75440	352213	47842	108395	119403	144 144 158 158 158 672 672
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	104958	14136	09066	45717	9029	96295	124062	905009	166591	540818	95887	159056	57565	78782	22097	22168	52391	95801	2941644	106433	521814	79390	153756	168897	
LANT	-30866	-4301	-29011	-15491	7694	-42282	-36536	-177294	-48980	-194848	-34057	-85452	-21346	-23086	-6504	-9193	-16570	-41604	-527210	-30994	-169501	-31548	-45361	56565-	16639 16639 16014 16014 16014
*** STRATEGY OPTIMUM PITAL ENISSIONS COST SAVINSS - \$000 RATIO P	0.521	0.422	0.521	0.295	0.148	0.465	0.522	0.523	0.521	0.523	0.415	0.415	0.493	0.516	0.435	0.463	0.229	0.062	0.430	0.503	0.072	0.353	0.522	0.522	i
*** STRACCAPITAL COST \$000	533596	153753	325555	277115	1234950	208487	333341	1386598	401612	1154632	214060	355287	154914	247589	70273	70314	217728	1000257	8821209	329608	3476328	224220	424558	546853	
LR CRD SAVINGS DOLLARS \$000	57326	-3763	31951	41652	32160	75407	119198	396470	130799	632500	33493	37714	61649	113519	7582	17707	-16259	05026-	\$030922	92180	697551	69863	136167	120426	O C T T T T T T
DAL DER.B COST RATIO	0.147	-0.026	0.121	0.105	0.063	0.173	0.243	0.211	0.227	0.255	0.076	0.059	0.220	0.263	0.105	0.166	-0.024	-0.024	0.153	0.228	0.065	0.125	0.232	0.159	
T FIRED,CC UTILITY FUEL SAVINGS	93.1	13.2	92.6	42.7	4.6	91.4	98.6	564.4	155.6	1.665	9.68	148.6	53.7	73.7	20.6	20.7	0.65	93.3	2748.4	99.5	497.4	74.2	143.7	157.7	5 4004 5 7 6 8 5 7 6 9 5 7 6 9 8 7 6 9
SH.	56.7	7.4	53.4	21.8	19.6	32.3	56.3	322.8	83.6	236.5	43.6	30.6	24.7	42.6	12.0	8.1	29.3	63.5	2104.3	57.5	241.4	33.0	83.1	91.2	000000 000000 000000
	0.365	0.165	0.363	0.202	0.175	0.269	0.373	0.373	0.372	0.354	0.258	0.175	0.323	0.370	0.341	0.279	0.128	0.051	0.322	0.376	0.053	0.213	0.376	0.335	
CTAS GENERAL SUBBARY - FRO HO.13 ADVANCED TECHNOLGSY,GAS T FUEL ENER INDUSTRY SAVINGS RATIO	NO.01 HEAT PACKING	HO.02 BAKING	HJ.03 HALT REVERAGE	HO.04 HOVEN FABRIC MILL	KO.05 SAW MILL	RO.06 NEWSPPINT MILL	HO.07 WPITING PAPER MILL	HO.08 CORRUGATED PAPER	NO.09 EOK POARD	80.10 CH1081RE	HO.11 ALUHIHA	80.12 LOW DENS. POLYETHYL	MO.13 PI DENS, POLYETHYL	HOLIG FOLYSTRYL CHICPIDE	NO.15 STAREME-BUT, PUB.	MD.16 HYLPH	PO.17 STEPENE	ROLIS ETBILEME	MOLIN PETFOLEUM REFINING	HO.20 TIPES	HOLES INTESPATED STEEL	HO.24 GPAY IPCH FOUNDRY	нэ, дэ солией	RO.26 MOTOP VEHICLE	ALL MOS CASE MOS CASE SAVINSOS SI SAVIN 8 ESISS

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STUDY	
ALTEPHATIVES	TELAPY
TECHNOLOGY	NATIONAL SU
- COSEMEPATION TECHNOLOGY	

NO.13 ADVANCED TECHNOLOGY, GAS TURBINE, DIRECT FIRED, COAL DER. BLR GPD	TURBINE, DIRE	CT FIRED, (	COAL DER.BL	R 690	γ * * * *	*** STRATEGY OPTIMUM	TIMUM			
CATECORY	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 104*12 BTU	cost s	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	MISSIONS TONS PER UTILI	5	S  TOTAL
	1 1 1 1	1	;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	,	;	1			;
TOTAL ALL	10457	17860		14011730	64075008	03	-5746862	19331728		13584857
FUEL SAVINGS CASES CHUY	10457			14011750	64075008	0.8	-5746862			13584857
COST SAVINGS CASES GALY	1769			14791805	55637458	83	-5373409			13039996
ENICATONS SAVINGS CASE ONLY	3.3	10		61044	2357165	9	14747		306	32053
FUEL & COST SAVINGS CASES	9971	16974		14791805	55637483	83	-5373409	109 18413408		13039996
FUEL, COST & ENISSION SAVING	33	16		61644	2367165	65	147	14747 173	17306	32053
		HAT	HATICHAL FUEL SAVINGS SUMMARY	SAVINGS SI	UMMARY					
	<u> </u>	FETROLEUN	FUEL SAVINGS	00	10**12 BTU COAL DEPIVED	1	:	·	TOTAL	
CATEGORY	a 5 v o	DISTILLATE	EOILER FUEL	GAS D	DISTILLATE	BOILER FUEL	FUEL	OTHER SAVINGS	FUEL	
	1	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
SITE FLUS UTILITY										
TOTAL ALL	14654	-425	6092	0	0	-28697	16645	2197	10457	
FUEL SAVINGS CASES CHLY	14654	-425	€092	0	0	-25697	16645	2197	10457	
COST SITINGS CASES CHLY	7637	-425	4076	0	0	-19326	15707	2153	9371	
ENISSIONS SAVINGS CASE ONLY	15	0	ø	0	0	-18	19	13	39	_
FUCL & COST SACINGS CASES	7637	-425	4076	0	0	-19326	15707	2153	9871	
FUEL, COST & EMISSION SAVING	15	0	Φ	0	0	-18	19	13	33	_
PACTUATING COAL FUEL CONTERSION										
1011 111	0	0	0	0	0	0	4666	2197	6863	
FUEL SAVINGS CARES CHLY	0	0	0	0	0	0	4656	2197	6863	
CUST SAVINGS CASES CALL	0	0	0	0	0	0	4534	2153	6447	
ENTSSIONS SYVINGS CASE CYLY	0	0	0	0	0	0	27	13	0,4	_
FULL & COST SAVINGS CASES	c	0	0	0	0	0	4624	2153	6447	
FUEL, COST & ENISSACH SAVING	0	0	0	0	0	0	2.2	13	40	_

	10	FCS
		ENISSIONS SAVINGS
	*** STRATEGY OPTINUM	EMISSIONS
	Ark STR	CAPITAL
	L GASIFIER	COST SAVINGS
	CT FIRED, COA	UTILITY
SUBSIAPY - PROCESS LEVEL	CHROLOGY, GAS TUREINE, DIRECT FIRED, COAL GASIFIER	FUEL EMERGY TOTAL UTILITY COST SAVINGS CAPITAL EMISSIONS

CTAS GENERAL

16S ECS SIZE TOTAL (MW)	33635 3.93*	6131 0.07*	33356 2.36*	17146 0,49#	14307 0.01*	34640 28.40	58327 17.63	203533 55.03	55994 37.54	119756 10.09	26637 19.15	17396 2.65*	16112 2.92*	26267 2.84*	7472 3.39*	5610 1.30*	34199 20.76	64069 15.19	2379674 84.09	36239 4.93*	133362 28.61	18745 5.21	51854 4.00*	57263 7.36	3450268 3450268 3444137 14307 3444137 14307
ENISSIONS SAVINGS TONS PER YEAR UTILITY TO	10295	8457	46051	23562	8033	42439	74301	283163	76864	131117	45065	24936	19506	30288	10350	7676	51804	95253	2935679	49734	192346	28219	72687	82565	4393992 4393992 4395435 4385435 4385435 4385435
LAHT	-13067	-2326	-12655	-6416	5274	-7849	-15474	-79630	-20370	-11352	-18428	-7591	-5364	-10020	-2878	-2065	-17605	-31185	-556005	-13495	-58984	-9474	-20833	-25303	-943623 -943623 -941297 -941297 -941297
*** STRATEGY OPTIMUM PITAL EMISSIONS COST SAVINGS - \$000 RATIO P	0.379	0.263	115.0	0.167	0.127	0.298	665.0	0.412	914.0	0.181	0.271	0.098	0.192	952.0	0.365	0.200	0.219	0.073	0.424	0.372	0.027	0.138	0.364	0.357	i
CAPITAL COST \$000	1473776	340277	915170	735758	1556649	492024	414466	3240791	620196	1316571	551859	456673	347795	652227	194139	167565	725659	2153392	34270368	942037	4568065	469716	1208143	1555961	60830112 60830112 60430312 1556649 60469640 1556649
SAVINGS DOLLARS \$000	33392	-13890	50721	12032	6265	103571	183060	683676	207190	446540	74401	47264	40670	75168	12522	13161	27454	66979	5378244	100400	214308	51805	155950	122577	8092214 8052214 8106105 4978 3106105 4973
JAL GASIF COST RATIO	90.0	-0.097	0.193	0.030	0.010	0.238	0.374	9.364	0.350	0.163	0.168	0.074	0.145	0.178	0.173	0.123	0.040	0.017	0.365	0.248	0.020	0.093	0.265	0.162	
T FIRED,CC UTILITY FUEL SAVINSS	43.7	7.9	43.1	22.0	4.8	40.4	59.1	206.2	72.5	121.0	45.1	23.3	18.2	33.9	9.6	7.2	43.4	92.7	2742.6	46.5	179.7	5.97	67.9	77.1	40.00 40.00 40.00 40.90 8
EINE, DIRECT TOTAL L FUEL SAVINSS (	21.9	0.4	21.6	11.1	15.3	26.8	36.4	130.8	36.7	9.95	13.0	10.8	9.2	17.2	5.0	3.6	21.8	05.1	1733.9	23.5	61.1	12.7	33.7	35.4	00000000000000000000000000000000000000
OST.645 TUP FUEL EMEPGY SAVINSS RATIO	0.200	660.0	0.226	0.104	0.135	0.224	0.327	0.231	0.237	0.144	0.108	0.062	0.121	0.149	602.0	0.125	550.0	0.052	0.266	0.215	0.013	0.082	0.210	0.170	
RO.14 ADJANCED TECHNOLOST,GAS TUTEINE,DIPECT FIRED,COAL GASIFIER FUEL EMPGY TOTAL UTILITY COST SAV SAVINGS FUEL FUEL FUEL PUEL POSTPY SAVINGS SAVINGS RATIO \$	LO.01 MEAT PLCKING	HO.02 BARING	ROLDS HALT BEVERASE	MO.0+ MOTEN FARRIC MILL	73.05 5AH MILL	HO.06 HEMSFRINT MILL	HO.OZ LPITIKS PAPER MILL	HO.08 COFRUSATED PAPER	NO.09 EOX EOXED	NO. NO CHUCRINE	E.S. 11. ALUMIRA	MOLIZ LOW DENS. POLYETHYL	RO.13 HI DEMS. FOLYETHYL	HOLLY FOLDSTRAL CHLORIDE	HO.15 STYRINE-BUT. PUB.	10.16 H110H	10.17 STIPEHE	KO. 19 ETHYLERE	ROLIA PETFOLLUM PLFINING	MO.20 TIRES	MO.22 .HECPATED STEEL	MOLEM GRAY IRON FOUNDAY	MOLES COPFLP	NO.26 NOICH VEHICLE	ath at the termination and

- CGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUMMARY

YEAR : 1990 FJ.14 ADVANCED TECHNOLOGY,GAS	TUPBINE, DIRECT FIRED, COAL GASIFIER	FIRED,C	OAL GASIFI	ER	ILS ###	*** SIRATEGY OPTIMUM	TIMUM				0.7
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BI	COST S	SAVINGS DOLLARS \$000	CAPITAL COST \$000		ELANT	MISSIONS TONS PER UTILI	9	S  TOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY CCST SAVINGS CASES ONLY	95600	11149	!	22935424 22935424 22935424	168625552 168625552 163625552	1 22 22	-2773641 -2773641 -2773641	41 12050230 41 12050230 41 12034019	1	9276578 9276578 9276578	
ENTSSICHS SAVINGS CASE ONLY FULL & COST SAVINGS CAN'S FUEL, COST & ENISSION SAVING	65.89 2.9 2.9	11133		9542 22962048 9542	2983901 167973312 2983901		10108 -2769181 10108			27423 9264826 27423	
		NATI	HATIONAL FUEL SAVINGS SUMMARY	SAVIHGS SU	JIIITARY						
CATEGOPY	NATUPAL PET GAS DIS	PETROLEUM DISTILLATE	FUEL SAVINGS PETROLEUM E BOILER FUEL	10 CO GAS	COAL DERIVED DISTILLATE	BOILER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL	<u></u>	
SITE FLUS UTILITY 101AL ALL	14654	425	6082	0	0	-8184	-7728	2197	9659	96	
FUEL SAVINGS CASES ONLY LOST SAVINGS CASES CALY	4504T	1425 2541	6032	<b>o</b> c	0 0	-8184 -8184	-7728	2197	6596	-0.0	
ERISSICHS STVINGS CASE ONLY	1 4 5 T	10 (	8 8	000	• • •	0	7-	13		6.0	
FUEL, COST & EMISSION SAVINS	15	0	8	•	• •	5070	2-1	13	400B	5 <b>6</b> 7	
THOUGHTHS COAL FUEL CONVERSION TOTAL ALL	1030	0	789	0	0	0	6926	2197	10993	55	
FULL SAVINGS CASES ONLY	າເ⊹0	0	769	0	0	0	9269	2197	10993	93	
COST SAVINGS CASES CRLY	16:00	00	739	0 0	0 (	0 0	6269	2184	10983	993	
FUEL & COST SAVINGS CASES	1080	• •	769	00	0	0	6269	2184	10983	y ai	
FUEL, COST & EMISSICH SAVING	c	0	0	0	0	0	92	13		39	

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01 ECS SIZE FAL (114)	49247 6.30	8389 0.10*	46386 3.99*	26022 0.99*	16387 0.01*	57720 58.58	54741 17.86	302059 90.14	82934 58.94	213461 24.07	45425 38.64	23100 4.14*	22762 6.42	40422 5.60	10521 5.83	7367 2.11*	31366 20.89	48448 15.12	2365424 84.20	37345 6.93	243456 64.87	18072 5.65	451.4 95565	63460 10.19	365355 365355 3839179 16337 3939179
ERISSIONS SAVINGS TONS PER YEAR UTILITY TOTAL	75905	12999	76898	46651	9453	62669	74301	455738 3(	124702	306641 21	68747	38288	41995	72579	17437	12173	51678	926001	2903596 230	59693	427653 24	30408	74646	465	5267337 366 5269337 366 5266925 387 9463 397 5266925 397
LAHT	-26558	-4610	-30512	-20629	6924	-28190	- i 956 1	-153679	-41769	08186-	-43322	-15188	-19234	-32157	-6916	-4806	-20312	-52479	-538173	-22348	-184197	-12336	-25201	-37006	-1425432 -1425432 -1427746 -1427746 -1427746
STRATEGY OPTIMUM L ENISSICHS SAVINGS - RATIO P	0.435	0.360	0.413	0.254	0.145	165.0	995.0	0.453	0.455	0.323	0.320	0.130	0.310	0.375	0.333	0.263	102.0	0.055	624.0	0.383	0.050	0.133	0.347	965.0	i
*4* STRAT CAPITAL E COST \$	1742089	400518	1200125	1023490	2803748	716694	927730	3956098	1139557	2840787	796605	536764	516463	921172	236337	198180	747658	2351367	30251056	1084751	6260221	156195	1229078	1722453	64073472 64073472 64073472 60259536 60269536
SAVINGS DOLLARS \$000	4056	-16006	2672	7725	-131595	133082	153120	505302	160716	571417	30602	90685	16155	90131	4361	13047	143378	1429106	2489683	72502	272936	121151	125727	97152	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
JAL(PFB) COST RATIO	0.010	-0.112	0.010	0.019	-0.257	9.305	0.313	0.312	0.314	0.230	690.0	0.077	0.157	0.150	0.000	0.122	0.211	0.352	0.372	0.179	0.026	0.217	0.214	0.129	'
T FIFED,COAL(PFB) UTILITY COST FUEL SAVINGS RATIO	70.9	12.1	71.9	43.6	8.8	81.6	59.1	4.83.4	117.6	253.0	82.9	35.8	39.2	67.9	16.3	11.3	43.3	53.3	2712.6	55.8	399.4	4.85	8.69	93.3	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
2	32.9	5.5	23.0	14.0	18.7	4.04	34.7	205.7	56.8	151.7	21.3	14.1	11.7	21.9	9.9	4.4	21.4	т т	1956.4	23.5	126.1	12.9	34.1	40.9	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0.258	0.133	0.226	0.130	0.166	0.337	0.312	0.282	0.284	0.227	0.132	0.081	0.154	0.190	0.211	0.153	150°0	0.039	0.301	0.215	0.028	0.033	0.213	0.155	
CTAS GENEPAL SURTARY - PROCESS LEVEL HO.15 ADVANCED TECHNOLGSY,6AS TUPBINE,DIR FUEL ENERGY TOTAL INCUSTRY SAVINGS FUEL RAITO SAVINGS	NO.01 MEAT PACKING	NO.02 PAKING	NO. 63 HALT BEVEFAGE	NO.04 ROVEN FABRIC MILL	HO.05 SAU MILL	NO.05 NEWSPPINI MILL	HO.07 HRITING PAPER HILL	HOLDS CORPUGATED PAPER	NO.09 EOK EOKPD	NO.10 CHICPINE	HO.11 ALUHINA	HOLLS LCW DEHS, POLYETHYL	ROLIS HI DERS. POLYETHAL	NO.14 FOUNTHAL CHLOPIDE	MOLIS STAPENE-BUT. RUS.	Earle Rifer	BOLLS STARME	MO. 16 ETHILENE	HOLIA PETPOLEUM REFIRING	ROLDO TIPES	HOLDS INTEGRATED STEEL	MOLLY GRAY IPON FOUNDRY	HOLLS COMPTR	MOLDS POTCR VEHICLE	L SAVING CAL'S ONL  1 SAVINGS CAC'S ONL  2 SAVINGS CAC'S ONL  2 COST SAVINGS CAC'S  1 COST S FITSTON S

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUNNARY

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HATIOHAL SURHARY	*** STRATEGY OPTINUM	SAVINGS CAPITAL EMISSIONS SAVINGS  DOLLARS COST TONS PER YEAR \$000 PLANT UTILITY TOTAL		deduction account	32564000 184305264 +472543 1531564 10766333	1/0103074 1/1/2377 1/23/2010 1/23/24/2030 1/24/2030	178163872 -4733979 15472836 107	0 0	SAVINGS SURBARY 10*412 BIU			<b>.</b>	2171	0 0 -1 13	0 0 -14630 2	0		0 0 -14637 2197	o	0 0 0 -14630 2171 7824	•	s1 1- 0
NATIO	TURBINE, DIRECT FIRED, COALUPEB	TOTAL UTILITY COST FUEL FUEL SAVINGS SAVINGS 10**12 BIU 10**12 BIU	601771 1780	-	1707 1707 1707 1707 1707		71		CHAL PETROLE			2000 42th +40th	ាល វេទា វ	0	-425 606	0			14654 -425 6092		0 51	•
OCOL . OVEX	ACED TECHNOLOGY, GAS	CATESORY SAY	10701	ייי און	FULL SAVINGS CASES ONLY	FORT DAVIDOR CADED CALL	ESTABLICIS DAVINOS UNOE GALT ESEL A COST SAVINOS UNSES	FULLCOST & EMISSION SAVING	HAT CAVECTURE S		SITE PLUS UTILITY		TOOL OFFICE CREEK CASE TOOL	EMISSIONS SAVINS CASE ONLY	FUEL 3 COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	INCLUDING COAL FUIL CONTERSION	TOTAL ALL	FUEL SAUTHOS CASES ONLY	COST SAVINGS CASES CRUT	A TACL BOX D BUILDING DISCUSS CAND	1010 1011 10111 10111

01 ECS SIZE (154)	2.91	*50.0	1.58*	0.34#	*10.0	29.43	18.78	48.09	40.04	8.41	14.39	1.37*	1.96*	1.86*	2.32	.76*	20.76	15.17	78.32	3.55	23.00	2.34	99.2	5.26	
NGS  TOTAL	17814	2785	16175	8627	9537	26273 2	63157	184250 4	64261 4	90157	13569	6721	8269	12660	3606	2374	5 6 9 6 4 .	56372	1368119	19993	101188	4224	26307	34142	2166447 2166447 2154126 0537 2154126
EMISSIONS SAVINGS TCHS PER YEAR UTILITY TO	32961	5012	28600	15262	9676	34468	74301	218524	76864	102603	31872	12059	12212	22211	6618	4193	49501	93255	1911561	33510	144894	14699	48524	61655	3036795 3035795 3023107 6576 3023107
LAHT	-15147	-2228	-12425	-6634	861	-8195	-111945	-34273	-12604	-12446	-18303	-5338	-5234	-9552	-2812	-1818	-21537	-36383	-543443	-13517	-43706	-10475	-22217	-21277	-870348 -870348 -870348 -868951 -868931
STRATEGY OPTIMUM IL EHISSIONS SAVINGS - RATIO P	0.201	0.120	0.253	0.084	0.085	0.226	0.536	0.459	0.478	0.136	0.155	0.038	960.0	0.117	0.228	0.085	0.177	0.065	0.299	0.205	0.021	0.031	0.185	0.213	i
*** STRAT CAPITAL E CUST S	1302256	276857	845279	627679	3221978	400766	1026776	3580171	1093176	1725412	485914	347575	304952	563502	162588	131082	642504	2697760	27492544	836326	6686655	384334	1075354	1308606	I ~ 1 ← 0 ← 0
) SAVINSS DOLLARS \$000	3615	-17825	28325	1995	-191423	75787	184096	637162	211873	364573	57175	26049	26058	46628	9718	7072	140515	1405451	4767948	61458	72281	93264	92137	77029	8000758 8000758 8410010 -191428 8410010
COALLAFBI COST S RATIO	600.0	-0.125	601.0	0.012	-0.374	0.174	0.376	0.339	0.368	0.147	0.129	0.041	60.0	0.110	÷£1.0	0.066	0.207	0.351	0.323	0.152	0.037	0.167	0.157	0.102	ı
ECT FIPED, UTILITY FUEL SATINGS	30.8	4.7	26.7	14.3	8.1	32.7	50.1	505.4	72.5	24.7	29.8	11.3	11.4	n . 0 C	6.2	9.8	4.5.4	9.05	1705.8	31.3	135.3	13.7	45.3	51.8	2635 2635 2635 2636 6 8 9
SS LEVEL BINE, INDIRE 10TAL U FUEL SAVINGS S	14.1	2.3	13.2	7.0	10.6	23.2	49.3	177.3	4.09	89.5	8.2	5.6	8. <b>č</b>	10.6	3.5	1.9	22.8	30.1	1278.9	16.5	66.5	3.1	3.5	63.9	10000 20000 10000 10000 111
MPY - PPOCECOSY, GAS TUTE ENERSY SAVINGS PATIO	0.134	0.057	0.167	0.065	+60.0	0.194	0.4+3	0.351	0.390	0.134	0.074	0.032	0.076	260.0	0.153	0.057	0.101	÷20.0	623.0	0.151	0.015	0.000	0.132	0.139	
CTAS GEMEPAL SUMMAPY - PROCESS LEVEL HOLL6 ADMARGED TECHNOLOSY,6AS TUTDINE, MOTRECT FIPED,COAL(AFB) FUEL EMERSY TOTAL UTILITY COST S SAVINGS FUEL FUEL PATIO SAVINGS SAVINGS RATIO	HO.01 MEAT PACE INS	RO.02 BARING	1.3.03 MALT BEVERAGE	BO.04 NOVEM FREPIC MILL	HO.CS SAW MILL	HO.05 NEWSFRINT MILL	NO.07 WRITINS PAPER HILL	HO.03 CORRUSATED PAPER	NO.09 EDK EDAPD	HO.10 CHLOPINE	EG.11 AUGINA	MOLIZ LOW DEMS, POLYETHAL	ED.13 HI BENS. POLYETHYL	HO.14 FOLIVIBIL CHLC°1DE	NO.15 STYPERE-BUT. PUB.	RO.16 BYLCH	KOLIZ STEPENE	ROLIS ETHYLENE	HO.19 PETFOLEUM FEFINING	HO.20 TIPES	HO.23 THTEGPATED STEEL	MOLES CRAF IROM FOUNDRY	MOLES CONFER	BROINES 601	TOTAL ALL FIGURATIONS CASES CHEN CHESTORYS CASES CHEN CHESTORYS SAVINGS CASE OMLY FOLL & CLST CYTHIGS CASE FIGURATIONS CASES

- CCGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

97	HSS TOTAL	41046 6448294 441046 6446294 14809 6424675 16630 18280 14809 6424675	TOTAL FUEL	5949 5949 5924 5924 5924	5 9 4 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
<b>5</b>	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	-2492754 89 -2492754 89 -2490134 89 1650 -2490134 89	COAL OTHER FUEL SAVINGS	-16559 2197 -16559 2197 -16529 2171 -16529 2171 -16529 2171	-16559 2197 -16559 2197 -16529 2171 -16 13
*** STRATEGY OPTIMUM	CAPITAL COST \$000	16232360 16232360 16232360 155617120 6175921 155617120	VATE BOILER FUEL		0000
HAILDHAL SUMARY	AVINGS DOLLARS \$000	29881568 29391568 30282672 -366931 30282672	SAVINGS S 10 GAS	6069 6069 6069 6069 0	0 2509 0 2509 2609 2609
MALIDHAL TUPBINE, INDIRECT FIRED, COAL(AFB)	TOTAL UTILITY FUEL FUEL SAVINSS SAVINSS 10**12 6TU 10**12 BTU	5949 8240 5949 8240 5924 8215 20 8215 0 0	NATIONAL FUEL  FUEL SAVINGS NATUPAL PETFOLEUM PETROLEUM GAS DISTILLATE EOLIER FUEL	14654 -425 14654 -425 14639 -425 15 0 14639 -425	14654 -425 14654 -425 14639 -425
YEAR : 1990 PR.16 ADVANCED TECHNOLOGY,GAS TO	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENTSSIONS SAVINGS CASE ONLY FUGL & COST SAVINGS CASES FUGL & COST SAVINGS CASES	CATEGORY	SITE PLUS UTILITY TOTAL ALL FUEL SAVINGS CASES CHL? CGST SAVINGS CAGES ONLY ENISSIONS SALINGS CASE CHLY FUEL A COST SALINGS CASES FUEL A COST SALINGS CASES	INCLUDING COAL FUEL CONVERSION TOTAL - ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENTSTERNS SAVINGS CASE ONLY

HO.17 ADVANCED TECHNOLOGY, GAS TUTBINE, CLO	1 103E	D CYCLE, UTILITY	COAL DER COST	. B.G. SAVINGS	*** STRA CAPITAL	*** STRATEGY OPTIHUM PITAL EMISSIONS		EMISSIONS SAVINGS	INGS	0 1 ECS
LO LO		FUEL	RATZO	DOLLARS \$000		SAVINGS RATIO	PLANT	TONS PER YEAR UTILITY	TOTAL	SIZE (MH)
	50.3	62.8	-0.006	-2383	1221024	0.508	-24546	88534	63788	7.48
	3.8	18.9	-0.375	-53628	639885	0.468	-7693	20172	12479	0.17*
	29.1	49.5	-0.069	-18139	720518	0.423	-15610	52990	37381	2.81*
	24.8	63.8	-0.056	-22399	1027261	0.387	-28645	68310	39665	1.49*
	20.5	7.8	0.032	16436	1429702	0.152	8785	8312	17097	0.01*
	26.7	59.5		96065	412486	0.331	-22826	61335	36510	42.72
	4.0.N	109.0	0.041	19880	910414	0.470	-52214	137110	94896	32.31
	260.5	599.3	0.000	929	3823649	9.476	-233779	637501	403722	86.11
	77.2	161.1	0.055	31663	1052130	624.0	-61341	170827	109466	82.68
	201.7	427.3	0.157	390616	2904089	0.445	-168647	462967	294320	37.37
	35.9	108.3	-0.155	-68736	737353	0.370	-53327	115931	62603	51.83
	23.4	61.9	0.039	54729	519472	0.214	-28310	12299	3791.	7.37
	9.02	53.7	160.0	25652	421989	0.451	-24378	57565	33188	9.50
	37.9	93.5	0.050	19012	749381	0.457	-41002	100023	59022	8.21
	10.3	24.9	-0.245	-17772	208414	0.459	-10971	26755	15783	9.19
	7.5	18.8	0.065	5269	181744	0.424	-8296	20166	11871	¥ 59¥
	26.4	47.0	-0.078	-52629	535353	0.212	-17451	50253	32802	20.84
	85.0	102.1	-0.007	-26999	1190282	0.081	-33242	104959	71617	15.20
	755.0	1671.2	-0.065	-962134	12064640	0.237	-732119	1733806	1056687	70.31
	£.0.4	120.1	-0.113	-45750	1140437	0.458	-52341	128478	76137	13.33
	1.061	437.4	0.017	181460	7105493	0.005	-207167	521814	314647	67.47
	6.2	6.7	-0.019	-10922	121936	0.918	-4607	7114	2507	1.39#
	45.6	17.1	0.108	63401	914451	907.0	-24636	82514	57873	4.71*
	77.8	191.3	-0.134	-101172	1653044	0.459	379		121094	9.11
		2155 2155 2155 2155		-551092 -551092 -551092 -551092 -551093 -551093 -551093 -551092 -55109	41635038 41235038 40424992 20424992 1429702 1429702		-1928158 -1928158 -863909 -863809 -863809	4933441 4933441 2326353 2326353 2326353 8312	3055281 3055281 1462546 17097 1462546 17097	

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- COSEMERATION TECHNOLOGY ALTERNATIVES STUDY -- HATIOMAL SUBMARY

	07													
		HGS TOTAL	10128387 10128387 6022163 32771 6022183	13	# ! !	7028	702 <b>8</b> 3953	39	39	3110	3110	2358	F 7	2358 43
		EMISSIONS SAVINGS TONS PER YEAR - IT UTILITY IN	16502834 9640634 9640634 15932 9640634	TOTAL OTHER FUEL	SAVINGS	2197	2197 710	13	13					710 13
	INCH.	EHI: TOP PLANT	-6374433 -6374433 -3616447 16839 -3618447 16839	_	FUEL S	13973	13973 6965	104	81	913	913	1648	D	10 t 8
	*** STRATEGY OPTINUM		- 99992	; ' <b>49</b>	FUEL	-29453	-29453	-15	-15	•	0	0	0 (	<b>0</b> 0
	S ***	CAPITAL COST \$000	129017216 129017216 73108316 73108316 73168316 73168316	U VED ATE	# # # #	0	00	00		0	0	0	o (	<b>0</b> 0
SUSTANI	B.G.	SAVINGS COLLARS \$000	-624176 -624176 2911736 31601 2911766	SAVINGS SU 10#H GAS DI	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	o o	<b>o</b> c		0	0	0	0 (	00
MALIUTAL SUFFIANT	COAL DER.	COST	!	HATIOHAL FUEL SAVINGS SUHHARY FUEL SAVINGS 10**12 BT UM PETFOLEUM COAL DERI ATE BOILER GAS DISTILL	FUEL	2809	6052 1748	60 cm	60	٥	0	0	o •	00
	D CYCLE,	UTILITY FUEL SAVINGS 10**12 BT	15189 15183 8747 8747 15	316	1	-425	50 <del>1</del> -	00	. 0	0	0	0	۰ ،	00
	TURETHE, CLOSED CYCLE, COAL DER.	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	7028 7028 3753 3753 3953 3953	HATUPAL PETR GAS DIST		14654	3112	15	15	0	0	C ·	<b>.</b>	<b>0</b> 0
YEAR : 1990	HOED TECHNOLOGY, GAS	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY CNST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE CHLY FUEL A COST SAVINGS CASES FUEL, COST & EMISSION SAVING	CATEGCRY		STTE FLUS UTILITY TOTAL ALL	FLEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE CHLY	FUEL, COST & EMISSION SAVING	7-CLUDING COAL FUEL CONTERSION TOTAL ALL	FLEL SAVINGS CASES CHLY	COST SAVINGS CASES CHLY	EMISSICHS SAVINGS CACE CALT	FUEL 1 COST SAVINGS CASES FUELLCOST 1 EMISSION SAVING

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ECS SIZE (194)	56 5.23	37 0.11*	29 4.10*	69 0.42*	48 0.01*	19 51.19	93 18.90	11 47.47	35 39.97	70 21.52	85 43.18	99 2.74*	5 2.44#	81 2.31*	90.5 92	11.21*	33 20.88	11 15.25	41 29.79	90 7.29	96 68.25	39 0.63*	18 2.92*	5.61	ស្រុក្ខខេត
IHGS TOTAL	39156	6737	36729	8869	15348	44119	56593	154811	60835	149570	29585	11399	705	12781	7126	3221	23733	34011	180241	23490	169096	-1439	22668	27404	1123135 1124575 1025264 15348 1027308
EMISSICHS SAVINGS TONS PER YEAR UTILITY TO	60539	12636	75209	18703	6749	71770	74301	218524	76864	261093	93905	24123	15076	27320	14493	6678	49312	103277	492203	59693	426055	3152	49243	58371	8 9 6 7 9
LANT	-21382	-5699	-38480	-9834	6233	-27651	-17708	-63713	-16029	-111528	-64309	-12724	-8021	-14539	-7367	-3457	-25579	99269-	-311962	-36202	-256959	-4591	-26575	-30968	316 316 65 65 162
STRATEGY OPTIMUM STREAM SAVINGS RATIO P	005.0	0.289	0.332	0.087	0.136	0.380	0.480	0.361	0.452	0.226	0.201	9.064	960.0	0.118	0.290	0.115	0.155	0.039	0.057	153.0	0.035	-0.011	0.159	0.171	i
*** STRA CAPITA: COST \$000	14750-9	636+07	1223002	978128	2882653	608436	952543	2717434	931703	2579134	657697	600955	354923	658693	217419	164764	023619	2147510	8524071	1056328	L358731	193772	1110249	1376356	1 0 0 1 1 1 H
SAVINGS DOLLARS \$000	45390	65505-	-1187	-29363	-138582	123346	172443	680514	521799	497333	-2271	33375	21647	33141	5230	7161	155366	1459501	5215237	55500	136712	97646	78743	11504	النابي البات الأحا
DALCAFBI COST RATIO	6.118	-0.284	-0.005	-0.0%	-0.271	0.283	0.352	0.362	0.386	0.1%	-0.005	0.052	0.077	0.030	0.072	0.067	0.230	0.360	0.354	0.137	0.013	0.175	0.134	0.005	
D CYCLE,COAL(AFB UTILITY COST FUEL SAVINSS RATIO	50.6	11.6	70.3	17.5	8.5	68.2	59.1	205.4	72.5	241.0	87.7	22.5	14.1	25.5	13.5	6.0	46.1	103.6	45.9.8	55.6	397.9	6.3	46.0	5+.5	7770 2770 2770 2770 2770 2770 2770 2770
3€	31.6	4.5	22.0	6.0	18.3	32.3	41.4	137.9	55.8	105.3	æ. ÷	6.3	8.4	6.7	1	2.0	16.3	43.1	16.4.6	10.7	45.0	-0.6	35.8	18.7	A THE BOOK OF THE SECOND SECON
MARY - PROCE GENISAS TUS FULL LHERGY SAVINGS RATIO	0.278	0.113	0.130	0.055	0.163	0.269	0.376	0.273	0.360	0.157	670.0	0.0.0	0.063	0.076	0.162	0.068	0.074	0.032	0.039	0.3ેલ	0.010	-0.00-	6:0:0	0.0.0	
CIAS GEREPAL SURDIAPI - PPOCESS LEVEL HOLL9 AGVANCED TECHNOLOSKISAS TURBINGICEO FULL LHEPSI TOTAL THRUSTEY SAVINGS FUEL RATIO SAVINGS	KO. 01 MEAT PACEING	HO.02 EAFINS	NO.03 MALT BEVERAGE	NO.04 HOVEN FABRIC MILL	AD.05 SAH MILL	NO.06 HLWSFPINT HILL	1.3.07 WPITING PAPER MILL	NO.03 COPPUSATED PAPER	10.09 EGX E04F0	ED. 10 CHIOPINE	E.S. 11 ALUMINA	HOLLS TOW BENS, POLYETHAL	HOLLS HI DEHS. FOLKETHIL	HOLIA FOLYVINKE CHEOPIDE	HO.15 STIPENE -EUT. PUB.	ED. 16 MYLCH	ED. 17 STYPERE	KO. 13 ETHYLENE	KOLIA PETFOLEUM PEFIHING	HO.20 TIMES	HOLOS INTEGRATED STEEL	KOLON COME IREN FOUNDY	6332.0 537.1	POLON POTON LEMICIE	5107 3 54 55 0 408 5 40 5 40 5 40 5 40 5 40 5

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURINARY

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CATEGORY   CATEGORY   COST & AVAINGS   CAPTAL   COST & AVAINGS   CAPTAL   COST & AVAINGS   CAPTAL   COST & AVAINGS   CAPTAL   COST & AVAINGS   CAPTAL   COST & AVAINGS   CAPTAL   CAP												•
NATURAL FUEL SAVINGS SUMMAN;   SAVINGS   SAV	CATEGORY	TOTAL FUEL SAVINGS 10#*12 BTU	UTILITY FUEL SAVINGS 10**12 B1	COST	SAVINGS DOLLARS \$000		11 To 12 To	PLAN	MISSIONS TONS PER	Ş	OTAL	
NATIONAL FUEL SAVINGS SUNTHAR;   NATIONAL FUEL SAVINGS   SUNTHAR;   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL PETROLEUM   NATURAL BOILER   GAS   DISTILLATE BOILER   COAL   OTHER   FUEL   SAVINGS   NATURAL PETROLEUM   N	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL. COST & EMISSION SAVING		8058 8058 6949 6949 9643		31488208 31301040 31913664 -265635 31726496	229593186 129221776 109790720 5525499		-4150 -4150 -460 -460 -460 -460 -460			578065 580826 141794 29419 144554	
TOTA  HATURAL PETROLEUM PETROLEUM COAL DERIVED  GAS DISTILLATE BOILER GAS DISTILLATE BOILER FUEL  FUEL  GAS DISTILLATE BOILER GAS DISTILLATE BOILER FUEL  FUEL			NAT	IONAL FUEL	SAVINGS S	UNEMARI		<u>.</u>				
14654 -425 6662 0 0 19192 2197 14583 -425 6678 0 0 1 19039 2119 14143 -17 5626 0 0 0 18741 2157 ES 14672 -17 5622 0 0 0 18587 2080  VING 0 0 0 19192 2197  ES 14654 -425 6682 0 0 0 19192 2197  I4583 -425 6682 0 0 0 19039 2119  I4583 -425 6678 0 0 0 19039 2119  ES 14672 -17 5622 0 0 0 18537 2080  VING 0 0 0 0 18537 2080  VING 0 0 0 0 0 18537 2080  VING 0 0 0 0 0 18537 2080	CATEGORY	1	FU TROLEUM STILLATE	JEL SAVING PETROLEUM BOILER FUEL	10 CO GAS	់ខ្លួ	SOILER' FUEL	COAL	OTHER SAVINGS	TOTAL FUEL		
HACES HAGS	VET 1 THE SHIP STATE	# # # # # # # # # # # # # # # # # # #				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!			
HYERSION HAS -425 6078 0 0 0 -19039 2119  19143 -17 5626 0 0 0 -16741 2157  19 14072 -17 5622 0 0 0 -18587 2060  VING  WERSION HAS -425 6082 0 0 0 -19192 2197  14593 -425 6078 0 0 0 -19039 2119  HAS 16 0 0 0 0 19039 2119  HAS 17 0 0 0 0 0 19039 2119  HAS 17 0 0 0 0 0 0 19039 2119  HAS 17 0 0 0 0 0 0 0 19039 2119  HAS 17 0 0 0 0 0 0 0 0 19039 2119  HAS 17 0 0 0 0 0 0 0 0 0 19039 2119  HAS 17 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL ALL	14654	-425	<b>60</b> 82	ь	•	-	-19192	2197	331	•	
DHLY 15 -17 5626 0 0 0 -16741 2157  15 0 8 0 0 -1 13  ES 14072 -17 5622 0 0 0 -16587 2080  VING 0 0 0 0 -16587 2080  VING 14654 -425 6082 0 0 0 -19192 2197  14583 -425 6078 0 0 0 -19192 2197  14143 -17 5626 0 0 0 -19741 2157  ES 14072 -17 5622 0 0 0 0 -16537 2080  VING 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FUEL SAVINGS CASES ONLY	14593	-425	6078	•	0	0	-19039	2119	331	_	
ES 14072 -17 5622 0 0 0 -1 13   ES 14072 -17 5622 0 0 0 16597 2080   VING 0 0 0 0 16597 2080   VING 14654 -425 6082 0 0 0 19039 2197   I4563 -425 6078 0 0 0 19039 2197   I4143 -17 5626 0 0 0 16741 2157   ES 14072 -17 5622 0 0 0 16537 2080   VING 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	COST SAVINGS CASES ONLY	14143	-17	5626	0	0	•	-18741	2157	316	. •	
SION 14654 -425 6082 0 0 0 -18587 2080 0 0 0 146587 2080 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ENISSIONS SAVINGS CASE ONLY	15	0	æ	0	0		7	13		ī,	
SION 14654 -425 6082 0 0 0 0 19192 2197 14583 -425 6078 0 0 0 18741 2157 14072 -17 5626 0 0 0 18741 2157 14072 -17 5622 0 0 0 18537 2080 0 0 0 18537 2080 0 0 0 0 0 18537 2080 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FUEL & COST SAVINGS CASES	14072	-17	5622	•	0	0	-18587	2080	317	•	
510N 14654 -425 6682 0 0 0 -19192 2197 14583 -425 6678 0 0 0 -19039 2119 14143 -17 5626 0 0 0 -18741 2157 14072 -17 5622 0 0 0 -18537 2080 0 0 0 0 -18537 2080 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FUEL, COST & EMISSION SAVING	0	•	0	0	0	•	0	•		•	
14654     -425     6082     0     0     -19192     2197       14563     -425     6078     0     0     -19039     2119       14143     -17     5626     0     0     -18741     2157       15     0     0     0     0     -18741     2157       14072     -17     5622     0     0     -16537     2080       0     0     0     0     0     0     0	INCLUDING COAL FUEL CONVERSION											
14583     -425     6078     0     0     -19039     2119       14143     -17     5626     0     0     -16741     2157       15     0     0     0     0     -16741     2157       15     0     0     0     0     -16741     2157       14072     -17     5622     0     0     0     -16537     2080       0     0     0     0     0     0     0     0	TOTAL ALL	14654	•425	6082	0	0	ę	-19192	2197	331	•	
14143 -17 5626 40 0 0 -18741 2157 15 0 8 0 0 0 -1 13 14072 -17 5622 0 0 0 -18537 2080 0 0 0 0 0 0 0	FUEL SAVINGS CASES ONLY	14583	-425	6078	0	•	0	-19039	2119	33	7	
15 0 8 0 0 0 -1 13 14072 -17 5622 0 0 0 -16537 2080 0 0 0 0 0 0 0	COST SAVINGS CASES ONLY	14143	-17	5626	9		0	-18741	2157	316	•	
14072 -17 5622 0 0 0 0 -18537 2080 0 0 0 0 0 0 0 0	EMISSIONS SAVINGS CASE ONLY	15	0	60	0	0	0	7	2			
	FUEL & COST SAVINGS CASES	14072	-17	5622		. 6		-18537	2080	1		
	FIEL COST & EMISSION SAVING						• •		}	;		
	Christian a historical charity	>	>	•	>	>	>	>	•		<b>-</b>	

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HO.19 ADVANCED TECHNOLOGY,STEA	ADVANCED TECHNOLOGY, STEAN II	SS LEVEL HJECT.G/T TOTAL	DIR.FIRED	, PETROL	OH B.G. SAVINGS	*** STR	*** STRATEGY OPTIMUM PITAL EMISSIONS		EMISSIONS SAVINGS	592	60S
	SAVINGS RATIO	ີດ	SAVINGS	RATIO	DOLLARS \$000	1000¢	SAVINGS RATIO	PLANT	TONS PER YEAR UTILITY	TOTAL	SIZE (MH)
HO.01 MEAT PACKING	0.305	62.3	147.3	-0.062	-24008	728294	0.526	-57016	157529	100512	13.05
	0.217	10.8	25.5	-0.120	-17082	237333	0.527	-9837	27275	17437	0.22*
HO. 03 HALT BEVERAGE	0.307	58.6	138.4	-0.137	-36056	429234	0.527	-53374	148007	64633	7.66#
NO.04 WOVEN FABRIC MILL	0.300	32.3	77.8	0.140	52624	956055	0.526	-30421	63274	52053	1.90*
	0.277	31.1	91.7	-0.017	-8641	1854001	0.521	-40240	98163	57924	0.204
NO.06 NEWSPRINT MILL	0.288	34.5	91.4	0.193	84101	4355	0.517	-37253	96292	59039	69.01
NO.07 WRITING PAPER MILL	0.310	61.8	146.9	0.078	38086	458096	0.527	-66728	184749	118021	42.50
NO.08 CORRUGATED PAPER	0.310	354.8	843.9	0.005	2930	1826284	0.527	-325087	177778	572684118.51	18.51
HO.09 BOX EDARD	0.309	97.5	232.9	0.039	22686	521868	0.527	-89652	246951	157299116	16.89
NO.10 CHLORINE	0.372	248.9	499.1	0.276	664158	1172723	175.0	-170486	540819	370333	44.64
	0.228	48.6	133.8	-0.068	-29970	291880	0.445	76695-	143242	86248	62.32
LOW DENS. POLYETHYL	942.0	42.6	148.6	0.126	80528	194322	0.507	-70090	159056	88966	18.17
NO.13 HI DENS. POLYETHYL	0.311	26.8	63.5	0.185	51874	171519	0.527	-24646	68013	43368	10.37
MO.14 POLYVINYL CHLORIDE	0.312	48.8	114.7	0.143	60482	313920	0.527	-44178	122616	78438	9.79*
STYRENE-BUT. RUB.	0.2.0	13.2	30.8	-0.102	-7401	92102	0.499	-11918	32996	21078	11.02
	0.312	4.7	22.8	0.180	19203	62073	0.528	-8761	24430	15670	4.23#
	0.079	18.2	48.3	-0.037	-59016	235783	0.203	-22145	51628	29483	20.93
NO.18 ETHYLENE	0.041	51.2	8.96	-0.030	-121843	831527	0.064	-48243	99423	51180	15.22
NO.19 PETROLEUM REFINING	0.247	1604.9	2711.4	0.043	638066	7476729	0.397	-798468	2902292	21038151	12.15
	0.312	63.0	148.2	0.045	18106	454685	0.528	-56978	158603	101625	16.01
HO.23 INTEGRATED STEEL	0.043	196.5	487.4	0.050	537096	3508153	0.070	-183699	521814	336115	98.65
HO.24 GRAY IRON FOUNDRY	0.191	29.6	74.2	0.104	58023	231982	0.372	-31112	79390	48279	17.23
	0.312	91.1	214.1	0.056	32892	567601	0.527	-82854	229128	146274	12.82
NO.26 MOTOR VEHICLE	0.286	18	235.5	0.004	2969	743093	0.527	-90878	252165	161286	22.87
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL 4 COST SAVINGS CASES FUEL 6 COST SAVINGS CASES		3337 3337 3043 3043 3043 0	682 652 611 611		2082804 2082804 2306821 2306821	2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		-2411052 -2411052 -2111289 -2111289	99 %	וא ואווא	

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SIMMADY

			NATIONAL	NATIONAL SUMMARY						
IEAR : 1770 NO.19 ADVANCED TECHNOLOGY,STEAM INJECT.G/T,DIR.FIRED,PETROLEUM B.G	1 INJECT.6/T	DIR.FIRED	, PETROLEUM	. B.G.	*** STRATEGY OPTIMUM	GY OPTI	HT.			
CATEGORY	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BTU	C05T	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVII TONS PER YEAR PLANT UTILITY	SAVINGS YEAR -	65  TOTAL
			;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		•	 			1
TOTAL ALL	9865	21587		5439202	68994672		-8199545	15 23443024	3024	15243480
FUEL SAVINGS CASES ONLY	9965	21587		5439202	68994672		-8199545	45 23443024	3024	15243480
COST SAVINGS CASES ONLY	8543	18394		7056858	52331280		-6809476		20056624	13247147
ENISSIONS SAVINGS CASE ONLY	0	0		0	0				0	a
FUEL & COST SAVINGS CASES	8543	18394		7056858	52331280		-6809476		20056624	13247147
FUEL, COST & EMISSION SAVING	0	0		0	0				•	0
		NATI	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS S	JHHARY					
		FU	FUEL SAVINGS	-	10**12 BTU	1				
CATEGORY	GAS D	PETROLEUM DISTILLATE	PETROLEUM BOILER FUEL	GAS D	COAL DERIVED DISTILLATE BOILER FUEL	# J	COAL	OTHER Savings	TOTAL FUEL	
	; ; ; ; ;	,		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						į
SITE PLUS UTILITY										
TOTAL ALL	14654	-425	-26933	0	0		20372	2197	•	9865
FUEL SAVINGS CASES ONLY	14654	-425	-26933	0	•	0	20372	2197	•	9865
COST SAVINGS CASES ONLY	7033	0	-17747	0	0		17093	2114	60	8543
EMISSIONS SAVINGS CASE ONLY	0	0	0	0	•	0	0	•		•
FUEL & COST SAVINGS CASES	7083	0	-17747	0	•	0	17093	2114	80	8543
FUEL, COST & EMISSION SAVING	0	•	0	0	•	0	0	0		•
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14654	-425	-26933	0	•	0	20372	2197	o	9865
FUEL SAVINGS CASES ONLY	14654	-425	-26933	0	0	0	20372	2197	٥	9965
COST SAVINGS CASES ONLY	7083	0	-17747	0	0	0	17093	2114	- €0	8543
EMISSIONS SAVINGS CASE ONLY	0	0	0	0	•	0	0	0	)	
FUEL & COST SAVINGS CASES	7083	0	-17747	0	0	0	17093	2114	40	8543
FUEL, COST & EMISSION SAVING	0	0	0	•	0	0	0	0	į	

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| 13.05              | 1 0.22*  | 1.66*   | 1.90*  | 0.20*   | 10.69  | 1 42.50  | 118.51  | 116.89   | 59.55  
   
   | 62.32   | 18.17  | 10.37  | 462.6  | 11.02   | 4.23*  
   
  | \$ 20.93   
   | 15.22   
  | 1112.14  | 16.91  | 5 98.65   | 17.23  | 12.82  | 22.87   | 0 4 0 4 0 4 0  |
|--------------------|--|---|--|---|--|--|---|--
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| 95356              | 16546  | 89810   | 5009   | 5415  | 52609  | 11196  | 543548  | 149176   | 355030   
   
   | 9608  | 82254  | 41136  | 7444   | 20000   | 14878  
   
  | 27398  
   | 46613   
  | 2043320  | 96477  | 319885  | 45234  | 138776   | 153069  | 4705416<br>4705416<br>4274607<br>4274607   |
| 157529             | 27275  | 148007  | 83275  | 98163   | 26296  | 184749   | 177778  | 246951   | 540618   
   
   | 143242  | 159056   | 68013  | 122616   | 32996   | 24430  
   
  | 51628  
   | 95466   
  | 2902105  | 158603   | 521814  | 79390  | 229128   | 252165  | 7325433<br>7325433<br>6567172<br>6567172<br>0  |
| -62173             | -10726   | -58197  | -33182   | -44039  | -40682   | -72767   | -354522   | -97775   | -165768  
   
   | -62279  | -76802   | -26877   | -48173   | -12996  | -9552  
   
  | -24230   
   | -52811  
  | -658786  | -62126   | -201930   | -34157   | -90352   | 96066-  | 000  |
| 0.489              | 0.490  | 0.490   | 0.489  | 0.481   | 6.479  | 0.490  | 0.490   | 0.490  | 0.537  
   
   | 0.412   | 995.0  | 067.0  | 0.491  | 0.465   | 264.0  
   
  | 0.176  
   | 0.053   
  | 0.367  | 0.491  | 990.0   | 0.334  | 067.0  | 0.491   | i  |
| 728294             | 237333   | 429234  | 956055   | 1854001   | 214322   | 428096   | 1826284   | 521868   | 1172723  
   
   | 291880  | 394322   | 171519   | 313920   | 92102   | 82073  
   
  | 235783   
   | 831474  
  | 7470104  | 454685   | 3508153   | 232014   | 567601   | 743093  | 23241776<br>23241776<br>16541696<br>0<br>18541696  |
| -24008             | -17032   | -36056  | 55624  | -8641   | 84101  | 38086  | 2930  | 22686  | 684158   
   
   | -29970  | 80528  | 51874  | 60432  | -7401   | 19203  
   
  | -59016   
   | -121826   
  | 667329   | 18106  | 537096  | 57307  | 32692  | 5968  | 9 9 9  |
| -0.062             | -0.120   | -0.137  | 0.140  | -0.017  | 0.193  | 0.078  | 0.002   | 0.039  | 0.276  
   
   | -0.068  | 0.126  | 0.185  | 0.143  | -0.102  | 0.180  
   
  | -0.087   
   | -0.030  
  | 0.045  | 0.045  | 0.050   | 0.103  | 0.056  | 0.004   |  |
| 147.3              | 25.5   | 138.4   | 77.8   | 91.7  | 91.4   | 146.9  | 843.9   | 232.9  | 499.1  
   
   | 133.8   | 148.6  | 63.5   | 114.7  | 30.8  | 22.8   
   
  | 48.3   
   | 96.8  
  | 2711.2   | 148.2  | 487.4   | 74.2   | 214.1  | 235.5   | 6825<br>6825<br>6112<br>0<br>6112<br>0   |
| 62.3               | 10.8   | 58.6  | 32.3   | 31.1  | 34.5   | 61.8   | 354.8   | 97.5   | 248.9  
   
   | 48.6  | 45.6   | 26.8   | 48.8   | 13.2  | 9.7  
   
  | 18.2   
   | 51.2  
  | 1612.6   | 63.0   | 196.5   | 29.4   | 91.1   | 100.2   | ் சேச்சி நி  |
| 0.305              | 0.217  | 0.307   | 0.300  | 0.277   | 0.288  | 0.310  | 0.310   | 0.309  | 0.372  
   
   | 0.228   | 0.244  | 0.311  | 0.312  | 0.290   | 0.312  
   
  | 0.079  
   | 0.041   
  | 0.248  | 0.312  | 0.043   | 0.190  | 0.312  | 0.286   |  |
| NO.01 HEAT PACKING | NO.02 BAKING   | NO.03 MALT BEVERAGE   | HO.04 WOVEN FABRIC MILL  | NO.05 SAH MILL  | NO.06 NEWSPRINT MILL   | NO.07 WRITING PAPER HILL   | NO.08 CORRUGATED PAPER  | HO.09 BOX BOARD  | NO.10 CHLORINE   
   
   | HO.11 ALUMINA   | NO.12 LOW DENS. POLYETHYL  | HO.13 HI DENS. POLYETHYL   | MO.14 POLYVINYL CHLORIDE   | 1:0.15 STYRENE-BUT. RUB.  | HO.16 NYLON  
   
  | NO.17 STYRENE  
   | NO.18 ETHYLENE  
  | NO.19 PETROLEUM REFINING   | NO.20 TIRES  | NO.23 INTEGRATED STEEL  | NO.24 GRAY IRON FOUNDRY  | NO.25 COPPER   | NO.26 HOTOR VEHICLE   | TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES OHLY ENISSIONS SAVINGS CASE OHLY FUEL & COST SAVINGS CASES FUEL COST & EMISSION SAVING  |
|                    | 0.305 62.3 147.3 -0.062 -24008 728294 0.489 -62173 157529 95356 13 | 0.305 62.3 147.3 -0.062 -24008 728294 0.489 -62173 157529 95356 13<br>0.217 10.8 25.5 -0.120 -17032 237333 0.490 -10726 27275 16548 0 | 0.305 62.3 147.3 -0.062 -24008 728294 0.489 -62173 157529 95356 13<br>0.217 10.8 25.5 -0.120 -17082 237333 0.490 -10726 27275 16548 0<br>0.307 58.6 138.4 -0.137 -36056 429234 0.490 -58197 148007 89810 7 | 0.305 62.3 147.3 -0.062 -24008 728294 0.489 -62173 157529 95356 13<br>0.217 10.8 25.5 -0.120 -17082 237333 0.490 -10726 27275 16548 0<br>0.307 58.6 138.4 -0.137 -36056 429234 0.490 -58197 148007 89810 7<br>0.300 32.3 77.8 0.140 55624 440956 0.489 -33182 83275 50093 1 | 0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16548         0           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -58197         148007         89810         7           0.300         32.3         77.8         0.140         55624         440956         0.489         -33182         83275         50093         1           0.277         31.1         91.7         -0.017         -8641         1854001         0.481         -44039         98163         54125         0 | 0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         237333         0.490         -10726         27275         16548         0           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -58197         148007         89810         7           0.300         35.3         77.8         0.140         55624         440956         0.489         -33182         83275         50093         1           0.277         31.1         91.7         -0.017         -6641         1854001         0.489         -44039         98163         54125         0           0.288         34.5         91.4         0.193         64101         214322         0.479         -40682         96292         55609         699 | 0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         237333         0.490         -10726         27275         16548         0           0.307         58.6         138.4         -0.137         -36056         440956         0.499         -58197         148007         89810         7           0.300         32.3         77.8         0.140         55624         440956         0.489         -33182         63125         50093         1           0.277         31.1         91.7         -0.017         -6641         185401         0.481         -46039         98163         54125         0           0.288         34.5         91.4         0.193         64101         214322         0.479         -40682         96292         55609         69           0.310         61.8         146.9         0.078         38086         428096         0.490         -72767         184749         111963         42609 | 0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16548         0           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -58197         146007         89810         7           0.300         32.3         77.8         0.140         55624         440956         0.469         -33182         83275         50093         1           0.277         31.1         91.7         -0.017         -8641         1854001         0.461         -44039         98163         54125         6           0.286         34.5         91.4         0.193         64101         214322         0.479         -40682         96292         55609         69           0.310         61.8         146.9         0.078         36086         428096         0.490         -72767         111963         43249118 | 0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16548 0         0           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -58197         148007         89810         7           0.300         32.3         77.8         0.140         55624         440956         0.469         -31182         83275         50093         1           0.277         31.1         91.7         -0.017         -8641         1854001         0.469         -40682         96163         54125         0           0.288         34.5         91.4         0.193         84101         214322         0.479         -40682         96292         55609         69           0.310         61.8         146.9         0.078         38086         428096         0.490         -72767         184749         111963         423249118           0.310         354.8         0.039         22686         521868         0.490 <t< th=""><th>0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16548         0           0.307         56.6         138.4         -0.137         -36056         429234         0.490         -58197         146007         89810         7           0.300         32.3         77.8         0.140         55624         440956         0.499         -33162         80107         16540         7         58197         146007         89810         7         80108         7         60128         80127         80127         80127         80127         80128</th><th>0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16548         0           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -58197         146007         89810         7           0.300         32.3         77.8         0.140         55624         440956         0.489         -33182         83275         50093         1           0.207         31.1         91.7         -0.017         -8641         1654001         0.489         -46039         93153         54125         0           0.289         34.5         91.4         0.193         64101         214322         0.479         -46682         5609         69           0.310         45.8         91.4         0.103         12668         428096         0.490         -72767         184749         111963         428118           0.310         354.8         0.039         22686         69490         0.490         -72767         18474</th><th>0.316         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         9536 13           0.217         10.8         25.5         -0.120         -17032         237333         0.490         -10726         27275         16546         0           0.3107         58.6         138.4         -0.137         -36054         440956         0.489         -58197         148007         8910         7           0.300         35.2         0.140         55624         440956         0.489         -33182         83275         50093         1           0.207         31.1         91.2         0.140         -5641         1854001         0.489         -44039         99163         54125         6093         1         6093         1         6101         -8641         1854001         0.490         -72767         184749         111963         4           0.208         34.5         91.4         0.193         25686         428096         0.490         -72767         184749         111963         4           0.309         43.6         0.002         2930         13626         0.490         -97756         246951         149176116&lt;</th><th>0.305         62.3         147.3         -0.062         -24008         720294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         237333         0.490         -10726         27275         16548 0           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -58197         146007         69810         7           0.300         35.3         77.8         0.140         55624         440956         0.489         -33182         63275         50093         1           0.277         31.1         91.7         -0.017         -6641         1854001         0.489         -33182         63125         50093         1           0.286  
      34.5         91.4         0.193         64101         214322         0.499         -46082         96292         55099         69           0.310         61.8         146.9         0.094         42809         0.490         -72747         184749         111963         42125         69094         9           0.310         61.8         166286         428096         0.490         -72747         14</th><th>0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         2775         16546 10           0.307         58.6         138.4         -0.137         -35056         429234         0.490         -58197         146007         89810 7           0.308         35.3         77.8         0.140         55624         440956         0.489         -13182         603275         50093         1           0.277         31.1         91.7         -0.017         -6641         1854001         0.469         -74039         98163         54125         6           0.289         34.5         91.4         0.193         64101         24322         0.499         -7767         184749         111983 42           0.310         61.8         91.4         0.103         22686         521868         0.490         -7775         246951         149176116           0.310         354.8         0.022         2930         112723         0.490         -7786         540916         149176         149176</th><th>0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16546         9           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -58197         148007         89810         1           0.300         32.3         77.8         0.140         55624         440956         0.489         -33182         81275         50093         1           0.207         31.1         91.7         -0.107         -6641         1654001         0.489         -33182         8125         50093         1           0.227         31.1         91.7         -0.117         -6641         1654001         0.491         -44039         98125         50093         1           0.228         34.5         91.4         0.193         84101         214322         0.490         -72047         184749         1110634         1           0.310         41.6         0.103         252686         429086         0.490         -72047<!--</th--><th>0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         15752         9536 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16548         0           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -18197         148007         89810         7           0.300         32.3         77.8         0.140         55624         440956         0.490         -38192         83275         50093         1           0.300         32.3         77.8         0.140         55624         440956         0.490         -38182         83156         56094         89           0.207         31.1         91.7         -0.107         -6641         165401         0.490         -40682         95295         96295         96296         96396         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         <td< th=""><th>0.305         62.3         62.1         7.28294         0.489         -62173         157529         9536 13           0.217         10.0         25.5         -0.120         -17026         237333         0.490         -10726         27275         16546         9           0.217         10.0         25.5         -0.120         -17026         247934         0.490         -10726         27275         16546         0           0.307         36.1         136.4         -0.137         -15652         440956         0.489         -31182         27275         16549         0           0.300         35.3         77.6         0.140         -56524         440956         0.489         -31182         63275         50991         7           0.207         31.1         91.7         -0.117         -0.641         1654001         0.480         -46082         63275         51093         1           0.208         31.0         91.4         -0.143         26401         64282         0.490         -72492         64156         111322         0.490         -72492         64156         111322         0.490         -72492         64056         111360         0.490         -72492         <td< th=""><th>0.305         62.3         147.3         -0.062         -24008         728284         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         237333         0.490         -10726         27275         16548         95356 13           0.307         56.6         138.4         -0.137         -36056         440956         0.499         -3182         69010         7           0.307         35.6         138.4         -0.137         -26056         440956         0.499         -3182         69010         7           0.307         35.6         138.4         -0.137         -26054         440956         0.499         -3186         69010         7           0.208         34.5         91.4         0.107         -2641         165401         0.499         -3186         6499         9496</th><th>0.305         62.3         147.3         -0.062         -22008         728294         0.489         -62173         157529         95356 13           0.217         10.6         25.5         -0.120         -17082         237333         0.490         -10726         27275         16546         9           0.307         56.6         138.4         -0.137         -36056         440956         0.490         -10726         37318         50093         1           0.307         35.3         77.8         0.140         55624         440956         0.490         -13182         83275         50093         1           0.207         31.3         77.8         0.140         55624         440956         0.490         -13182         54125         56093         1           0.208         35.2         91.4         0.193         64101         165400         -4606         -4603         94062         55093         4           0.310         61.6         1.04.9         0.078         34106         64206         0.499         -46068         36282         56093         111993         46126         111193         46126         1111993         46126         1111993         46126         11</th><th>0.305         6.2.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.0         25.5         -0.120         -17032         237333         0.490         -10726         27275         16546         0           0.307         58.6         133.4         -0.137         -26056         440956         0.490         -58197         146007         89810         7           0.307         31.1         91.7         -0.137         -6641         1654001         0.490         -58197         146007         89810         7           0.209         31.2         37.2         -0.137         -6641         1654001         0.490         -4643         9463         9469         94899         9489         94899         94899</th><th>0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         23733         0.490         -16726         27275         16546         9810         7           0.307         58.6         133.4         -0.137         -36056         449056         0.490         -31182         82755         50093         1           0.300         32.3         77.8         0.140         55624         440956         0.490         -31182         82755         50093         1           0.200         32.3         77.8         0.140         55624         440956         0.490         -31182         82755         50093         1           0.200         32.3         77.8         0.140         6410         144056         0.499         -3186         9410         14124         14124           0.310         36.26         36046         440956         0.499         -3186         64409         -3186         9410         14124         14124         14124         14124         14124         14124         14124         14124         14124</th></td<><th>0.305         6.6.1         147.3         -0.062         -24008         728294         0.490        
-62173         157529         9356 13           0.217         1.0.6         25.5         -0.120         -17002         237333         0.490         -10726         27273         1656         1656         1656         1656         1656         1656         1656         1656         1656         1666</th><th>0.305         6.6.1         147.3         -0.062         -24008         728294         0.490         -62173         157529         9356 13           0.217         1.0.6         25.5         -0.120         -17002         237333         0.490         -10726         27273         16560         16560         16560         16560         16560         16560         16560         16560         16600</th><th>0.305         62.3         147.3         -0.062         -24000         728294         0.489         -62173         157269         95356 13           0.207         10.0         25.5         -0.120         -17082         237333         0.490         -10726         27255         16546         0           0.307         36.1         136.4         -0.137         -36056         429234         0.490         -13182         63275         50093         1           0.300         32.3         77.6         0.140         55624         440956         0.469         -13182         63275         50093         1           0.200         32.3         77.6         0.140         -16540         0.469         -58197         146007         69010         7           0.202         32.0         0.073         36086         420806         0.490         -72767         16479         111633         4           0.309         3772         1.04.9         428086         0.490         -72767         16479         111633         4           0.309         3772         1.0407         36086         521868         0.490         -72767         164749         4           0.309</th></th></td<></th></th></t<> | 0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16548         0           0.307         56.6         138.4         -0.137         -36056         429234         0.490         -58197         146007         89810         7           0.300         32.3         77.8         0.140         55624         440956         0.499         -33162         80107         16540         7         58197         146007         89810         7         80108         7         60128         80127         80127         80127         80127         80128 | 0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16548         0           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -58197         146007         89810         7           0.300         32.3         77.8         0.140         55624         440956         0.489         -33182         83275         50093         1           0.207         31.1         91.7         -0.017         -8641         1654001         0.489         -46039         93153         54125         0           0.289         34.5         91.4         0.193         64101         214322         0.479         -46682         5609         69           0.310         45.8         91.4         0.103         12668         428096         0.490         -72767         184749         111963         428118           0.310         354.8         0.039         22686         69490         0.490         -72767         18474 | 0.316         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         9536 13           0.217         10.8         25.5         -0.120         -17032         237333         0.490         -10726         27275         16546         0           0.3107         58.6         138.4         -0.137         -36054         440956         0.489         -58197         148007         8910         7           0.300         35.2         0.140         55624         440956         0.489         -33182         83275         50093         1           0.207         31.1         91.2         0.140         -5641         1854001         0.489         -44039         99163         54125         6093         1         6093         1         6101         -8641         1854001         0.490         -72767         184749         111963         4           0.208         34.5         91.4         0.193         25686         428096         0.490         -72767         184749         111963         4           0.309         43.6         0.002         2930         13626         0.490         -97756         246951         149176116< | 0.305         62.3         147.3         -0.062         -24008         720294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         237333         0.490         -10726         27275         16548 0           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -58197         146007         69810         7           0.300         35.3         77.8         0.140         55624         440956         0.489         -33182         63275         50093         1           0.277         31.1         91.7         -0.017         -6641         1854001         0.489         -33182         63125         50093         1           0.286         34.5         91.4         0.193         64101         214322         0.499         -46082         96292         55099         69           0.310         61.8         146.9         0.094         42809         0.490         -72747         184749         111963         42125         69094         9           0.310         61.8         166286         428096         0.490         -72747         14 | 0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         2775         16546 10           0.307         58.6         138.4         -0.137         -35056         429234         0.490         -58197         146007         89810 7           0.308         35.3         77.8         0.140         55624         440956         0.489         -13182         603275         50093         1           0.277         31.1         91.7         -0.017         -6641         1854001         0.469         -74039         98163         54125         6           0.289         34.5         91.4         0.193         64101         24322         0.499         -7767         184749         111983 42           0.310         61.8         91.4         0.103         22686         521868         0.490         -7775         246951         149176116           0.310         354.8         0.022         2930         112723         0.490         -7786         540916         149176         149176 | 0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16546         9           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -58197         148007         89810         1           0.300         32.3         77.8         0.140         55624         440956         0.489         -33182         81275         50093      
  1           0.207         31.1         91.7         -0.107         -6641         1654001         0.489         -33182         8125         50093         1           0.227         31.1         91.7         -0.117         -6641         1654001         0.491         -44039         98125         50093         1           0.228         34.5         91.4         0.193         84101         214322         0.490         -72047         184749         1110634         1           0.310         41.6         0.103         252686         429086         0.490         -72047 </th <th>0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         15752         9536 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16548         0           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -18197         148007         89810         7           0.300         32.3         77.8         0.140         55624         440956         0.490         -38192         83275         50093         1           0.300         32.3         77.8         0.140         55624         440956         0.490         -38182         83156         56094         89           0.207         31.1         91.7         -0.107         -6641         165401         0.490         -40682         95295         96295         96296         96396         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         <td< th=""><th>0.305         62.3         62.1         7.28294         0.489         -62173         157529         9536 13           0.217         10.0         25.5         -0.120         -17026         237333         0.490         -10726         27275         16546         9           0.217         10.0         25.5         -0.120         -17026         247934         0.490         -10726         27275         16546         0           0.307         36.1         136.4         -0.137         -15652         440956         0.489         -31182         27275         16549         0           0.300         35.3         77.6         0.140         -56524         440956         0.489         -31182         63275         50991         7           0.207         31.1         91.7         -0.117         -0.641         1654001         0.480         -46082         63275         51093         1           0.208         31.0         91.4         -0.143         26401         64282         0.490         -72492         64156         111322         0.490         -72492         64156         111322         0.490         -72492         64056         111360         0.490         -72492         <td< th=""><th>0.305         62.3         147.3         -0.062         -24008         728284         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         237333         0.490         -10726         27275         16548         95356 13           0.307         56.6         138.4         -0.137         -36056         440956         0.499         -3182         69010         7           0.307         35.6         138.4         -0.137         -26056         440956         0.499         -3182         69010         7           0.307         35.6         138.4         -0.137         -26054         440956         0.499         -3186         69010         7           0.208         34.5         91.4         0.107         -2641         165401         0.499         -3186         6499         9496</th><th>0.305         62.3         147.3         -0.062         -22008         728294         0.489         -62173         157529         95356 13           0.217         10.6         25.5         -0.120         -17082         237333         0.490         -10726         27275         16546         9           0.307         56.6         138.4         -0.137         -36056         440956         0.490         -10726         37318         50093         1           0.307         35.3         77.8         0.140         55624         440956         0.490         -13182         83275         50093         1           0.207         31.3         77.8         0.140         55624         440956         0.490         -13182         54125         56093         1           0.208         35.2         91.4         0.193         64101         165400         -4606         -4603         94062         55093         4           0.310         61.6         1.04.9         0.078         34106         64206         0.499         -46068         36282         56093         111993         46126         111193         46126         1111993         46126         1111993         46126         11</th><th>0.305         6.2.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.0         25.5         -0.120         -17032         237333         0.490         -10726         27275         16546         0           0.307         58.6         133.4         -0.137         -26056         440956         0.490         -58197         146007         89810         7           0.307         31.1         91.7         -0.137         -6641         1654001         0.490         -58197         146007         89810         7           0.209         31.2         37.2         -0.137         -6641         1654001         0.490         -4643         9463         9469         94899         9489         94899         94899</th><th>0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         23733         0.490         -16726         27275         16546         9810         7           0.307         58.6         133.4         -0.137         -36056         449056         0.490         -31182         82755         50093         1           0.300         32.3         77.8         0.140         55624         440956         0.490         -31182         82755         50093         1           0.200         32.3         77.8         0.140         55624         440956         0.490         -31182         82755         50093         1           0.200         32.3         77.8         0.140         6410         144056         0.499         -3186         9410         14124         14124           0.310         36.26         36046         440956         0.499         -3186         64409         -3186         9410         14124         14124         14124         14124         14124         14124         14124         14124         14124</th></td<><th>0.305         6.6.1         147.3         -0.062         -24008         728294         0.490         -62173         157529         9356 13           0.217         1.0.6         25.5         -0.120         -17002         237333         0.490         -10726         27273         1656         1656         1656         1656         1656         1656         1656         1656         1656         1666</th><th>0.305         6.6.1         147.3         -0.062         -24008         728294         0.490         -62173         157529         9356 13           0.217         1.0.6         25.5         -0.120         -17002         237333         0.490         -10726         27273         16560         16560         16560         16560         16560         16560         16560         16560         16600     
   16600         16600         16600         16600         16600         16600         16600         16600         16600</th><th>0.305         62.3         147.3         -0.062         -24000         728294         0.489         -62173         157269         95356 13           0.207         10.0         25.5         -0.120         -17082         237333         0.490         -10726         27255         16546         0           0.307         36.1         136.4         -0.137         -36056         429234         0.490         -13182         63275         50093         1           0.300         32.3         77.6         0.140         55624         440956         0.469         -13182         63275         50093         1           0.200         32.3         77.6         0.140         -16540         0.469         -58197         146007         69010         7           0.202         32.0         0.073         36086         420806         0.490         -72767         16479         111633         4           0.309         3772         1.04.9         428086         0.490         -72767         16479         111633         4           0.309         3772         1.0407         36086         521868         0.490         -72767         164749         4           0.309</th></th></td<></th> | 0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         15752         9536 13           0.217         10.8         25.5         -0.120         -17082         237333         0.490         -10726         27275         16548         0           0.307         58.6         138.4         -0.137         -36056         429234         0.490         -18197         148007         89810         7           0.300         32.3         77.8         0.140         55624         440956         0.490         -38192         83275         50093         1           0.300         32.3         77.8         0.140         55624         440956         0.490         -38182         83156         56094         89           0.207         31.1         91.7         -0.107         -6641         165401         0.490         -40682         95295         96295         96296         96396         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496         96496 <td< th=""><th>0.305         62.3         62.1         7.28294         0.489         -62173         157529         9536 13           0.217         10.0         25.5         -0.120         -17026         237333         0.490         -10726         27275         16546         9           0.217         10.0         25.5         -0.120         -17026         247934         0.490         -10726         27275         16546         0           0.307         36.1         136.4         -0.137         -15652         440956         0.489         -31182         27275         16549         0           0.300         35.3         77.6         0.140         -56524         440956         0.489         -31182         63275         50991         7           0.207         31.1         91.7         -0.117         -0.641         1654001         0.480         -46082         63275         51093         1           0.208         31.0         91.4         -0.143         26401         64282         0.490         -72492         64156         111322         0.490         -72492         64156         111322         0.490         -72492         64056         111360         0.490         -72492         <td< th=""><th>0.305         62.3         147.3         -0.062         -24008         728284         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         237333         0.490         -10726         27275         16548         95356 13           0.307         56.6         138.4         -0.137         -36056         440956         0.499         -3182         69010         7           0.307         35.6         138.4         -0.137         -26056         440956         0.499         -3182         69010         7           0.307         35.6         138.4         -0.137         -26054         440956         0.499         -3186         69010         7           0.208         34.5         91.4         0.107         -2641         165401         0.499         -3186         6499         9496</th><th>0.305         62.3         147.3         -0.062         -22008         728294         0.489         -62173         157529         95356 13           0.217         10.6         25.5         -0.120         -17082         237333         0.490         -10726         27275         16546         9           0.307         56.6         138.4         -0.137         -36056         440956         0.490         -10726         37318         50093         1           0.307         35.3         77.8         0.140         55624         440956         0.490         -13182         83275         50093         1           0.207         31.3         77.8         0.140         55624         440956         0.490         -13182         54125         56093         1           0.208         35.2         91.4         0.193         64101         165400         -4606         -4603         94062         55093         4           0.310         61.6         1.04.9         0.078         34106         64206         0.499         -46068         36282         56093         111993         46126         111193         46126         1111993         46126         1111993         46126         11</th><th>0.305         6.2.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.0         25.5         -0.120         -17032         237333         0.490         -10726         27275         16546         0           0.307         58.6         133.4         -0.137         -26056         440956         0.490         -58197         146007         89810         7           0.307         31.1         91.7         -0.137         -6641         1654001         0.490         -58197         146007         89810         7           0.209         31.2         37.2         -0.137         -6641         1654001         0.490         -4643         9463         9469         94899         9489         94899         94899</th><th>0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         23733         0.490         -16726         27275         16546         9810         7           0.307         58.6         133.4         -0.137         -36056         449056         0.490         -31182         82755         50093         1           0.300         32.3         77.8         0.140         55624         440956         0.490         -31182         82755         50093         1           0.200         32.3         77.8         0.140         55624         440956         0.490         -31182         82755         50093         1           0.200         32.3         77.8         0.140         6410         144056         0.499         -3186         9410         14124         14124           0.310         36.26         36046         440956         0.499         -3186         64409         -3186         9410         14124         14124         14124         14124         14124         14124         14124         14124         14124</th></td<><th>0.305         6.6.1         147.3         -0.062         -24008         728294         0.490         -62173         157529         9356 13           0.217         1.0.6         25.5         -0.120         -17002         237333         0.490         -10726         27273         1656         1656         1656         1656         1656         1656         1656         1656         1656         1666</th><th>0.305         6.6.1         147.3         -0.062         -24008         728294         0.490         -62173         157529         9356 13           0.217         1.0.6         25.5         -0.120         -17002         237333         0.490         -10726         27273         16560         16560         16560         16560         16560         16560         16560         16560   
     16600         16600</th><th>0.305         62.3         147.3         -0.062         -24000         728294         0.489         -62173         157269         95356 13           0.207         10.0         25.5         -0.120         -17082         237333         0.490         -10726         27255         16546         0           0.307         36.1         136.4         -0.137         -36056         429234         0.490         -13182         63275         50093         1           0.300         32.3         77.6         0.140         55624         440956         0.469         -13182         63275         50093         1           0.200         32.3         77.6         0.140         -16540         0.469         -58197         146007         69010         7           0.202         32.0         0.073         36086         420806         0.490         -72767         16479         111633         4           0.309         3772         1.04.9         428086         0.490         -72767         16479         111633         4           0.309         3772         1.0407         36086         521868         0.490         -72767         164749         4           0.309</th></th></td<> | 0.305         62.3         62.1         7.28294         0.489         -62173         157529         9536 13           0.217         10.0         25.5         -0.120         -17026         237333         0.490         -10726         27275         16546         9           0.217         10.0         25.5         -0.120         -17026         247934         0.490         -10726         27275         16546         0           0.307         36.1         136.4         -0.137         -15652         440956         0.489         -31182         27275         16549         0           0.300         35.3         77.6         0.140         -56524         440956         0.489         -31182         63275         50991         7           0.207         31.1         91.7         -0.117         -0.641         1654001         0.480         -46082         63275         51093         1           0.208         31.0         91.4         -0.143         26401         64282         0.490         -72492         64156         111322         0.490         -72492         64156         111322         0.490         -72492         64056         111360         0.490         -72492 <td< th=""><th>0.305         62.3         147.3         -0.062         -24008         728284         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         237333         0.490         -10726         27275         16548         95356 13           0.307         56.6         138.4         -0.137         -36056         440956         0.499         -3182         69010         7           0.307         35.6         138.4         -0.137         -26056         440956         0.499         -3182         69010         7           0.307         35.6         138.4         -0.137         -26054         440956         0.499         -3186         69010         7           0.208         34.5         91.4         0.107         -2641         165401         0.499         -3186         6499         9496</th><th>0.305         62.3         147.3         -0.062         -22008         728294         0.489         -62173         157529         95356 13           0.217         10.6         25.5         -0.120         -17082         237333         0.490         -10726         27275         16546         9           0.307         56.6         138.4         -0.137         -36056         440956         0.490         -10726         37318         50093         1           0.307         35.3         77.8         0.140         55624         440956         0.490         -13182         83275         50093         1           0.207         31.3         77.8         0.140         55624         440956         0.490         -13182         54125         56093         1           0.208         35.2         91.4         0.193         64101         165400         -4606         -4603         94062         55093         4           0.310         61.6         1.04.9         0.078         34106         64206         0.499         -46068         36282         56093         111993         46126         111193         46126         1111993         46126         1111993         46126         11</th><th>0.305         6.2.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.0         25.5         -0.120         -17032         237333         0.490         -10726         27275         16546         0           0.307         58.6         133.4         -0.137         -26056         440956         0.490         -58197         146007         89810         7           0.307         31.1         91.7         -0.137         -6641         1654001         0.490         -58197         146007         89810         7           0.209         31.2         37.2         -0.137         -6641         1654001         0.490         -4643         9463         9469         94899         9489         94899         94899</th><th>0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         23733         0.490         -16726         27275         16546         9810         7           0.307         58.6         133.4         -0.137         -36056         449056         0.490         -31182         82755         50093         1           0.300         32.3         77.8         0.140         55624         440956         0.490         -31182         82755         50093         1           0.200         32.3         77.8         0.140         55624         440956         0.490         -31182         82755         50093         1           0.200         32.3         77.8         0.140         6410         144056         0.499         -3186         9410         14124         14124           0.310         36.26         36046         440956         0.499         -3186         64409         -3186         9410         14124         14124         14124         14124         14124         14124         14124         14124         14124</th></td<> <th>0.305         6.6.1         147.3         -0.062         -24008         728294         0.490         -62173         157529         9356 13           0.217         1.0.6         25.5         -0.120         -17002         237333         0.490         -10726         27273         1656         1656         1656         1656         1656         1656         1656         1656         1656         1666</th> <th>0.305         6.6.1         147.3         -0.062         -24008         728294         0.490         -62173         157529         9356 13           0.217         1.0.6         25.5         -0.120         -17002         237333         0.490         -10726         27273         16560         16560         16560         16560         16560         16560         16560         16560         16600        
16600         16600</th> <th>0.305         62.3         147.3         -0.062         -24000         728294         0.489         -62173         157269         95356 13           0.207         10.0         25.5         -0.120         -17082         237333         0.490         -10726         27255         16546         0           0.307         36.1         136.4         -0.137         -36056         429234         0.490         -13182         63275         50093         1           0.300         32.3         77.6         0.140         55624         440956         0.469         -13182         63275         50093         1           0.200         32.3         77.6         0.140         -16540         0.469         -58197         146007         69010         7           0.202         32.0         0.073         36086         420806         0.490         -72767         16479         111633         4           0.309         3772         1.04.9         428086         0.490         -72767         16479         111633         4           0.309         3772         1.0407         36086         521868         0.490         -72767         164749         4           0.309</th> | 0.305         62.3         147.3         -0.062         -24008         728284         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         237333         0.490         -10726         27275         16548         95356 13           0.307         56.6         138.4         -0.137         -36056         440956         0.499         -3182         69010         7           0.307         35.6         138.4         -0.137         -26056         440956         0.499         -3182         69010         7           0.307         35.6         138.4         -0.137         -26054         440956         0.499         -3186         69010         7           0.208         34.5         91.4         0.107         -2641         165401         0.499         -3186         6499         9496 | 0.305         62.3         147.3         -0.062         -22008         728294         0.489         -62173         157529         95356 13           0.217         10.6         25.5         -0.120         -17082         237333         0.490         -10726         27275         16546         9           0.307         56.6         138.4         -0.137         -36056         440956         0.490         -10726         37318         50093         1           0.307         35.3         77.8         0.140         55624         440956         0.490         -13182         83275         50093         1           0.207         31.3         77.8         0.140         55624         440956         0.490         -13182         54125         56093         1           0.208         35.2         91.4         0.193         64101         165400         -4606         -4603         94062         55093         4           0.310         61.6         1.04.9         0.078         34106         64206         0.499         -46068         36282         56093         111993         46126         111193         46126         1111993         46126         1111993         46126         11 | 0.305         6.2.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.0         25.5         -0.120         -17032         237333         0.490         -10726         27275         16546         0           0.307         58.6         133.4         -0.137         -26056         440956         0.490         -58197         146007         89810         7           0.307         31.1         91.7         -0.137         -6641         1654001         0.490         -58197         146007         89810         7           0.209         31.2         37.2         -0.137         -6641         1654001         0.490         -4643         9463         9469         94899         9489         94899         94899 | 0.305         62.3         147.3         -0.062         -24008         728294         0.489         -62173         157529         95356 13           0.217         10.8         25.5         -0.120         -17032         23733         0.490         -16726         27275         16546         9810         7           0.307         58.6         133.4         -0.137         -36056         449056         0.490         -31182         82755         50093         1           0.300         32.3         77.8         0.140         55624         440956         0.490         -31182         82755         50093         1           0.200         32.3         77.8         0.140         55624         440956         0.490         -31182         82755         50093         1           0.200         32.3         77.8         0.140         6410         144056         0.499         -3186         9410         14124         14124           0.310         36.26         36046         440956         0.499         -3186         64409         -3186         9410         14124         14124         14124         14124         14124         14124         14124         14124         14124 | 0.305         6.6.1         147.3         -0.062         -24008         728294         0.490         -62173         157529         9356 13           0.217         1.0.6         25.5         -0.120         -17002         237333         0.490         -10726         27273         1656         1656         1656         1656         1656         1656         1656         1656         1656         1666 | 0.305         6.6.1         147.3         -0.062         -24008         728294         0.490         -62173         157529         9356 13           0.217         1.0.6         25.5         -0.120         -17002         237333         0.490         -10726         27273         16560         16560         16560         16560         16560         16560         16560         16560         16600 | 0.305         62.3         147.3         -0.062         -24000         728294         0.489         -62173         157269         95356 13           0.207         10.0         25.5         -0.120         -17082         237333         0.490         -10726         27255         16546         0           0.307         36.1         136.4         -0.137         -36056         429234         0.490         -13182         63275         50093         1           0.300         32.3         77.6         0.140         55624         440956         0.469         -13182         63275         50093         1           0.200         32.3         77.6         0.140         -16540         0.469         -58197         146007         69010         7           0.202         32.0         0.073         36086         420806         0.490         -72767         16479         111633         4           0.309         3772         1.04.9         428086         0.490         -72767         16479         111633         4           0.309         3772         1.0407         36086         521868         0.490         -72767         164749         4           0.309 |

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

		S  TOTAL	14514632 14514632 12647454 0 12647454		1	•	o r		<b>&gt;</b> 0	_		r	•	m e	<b>-</b>
		9	i	TOTAL FUEL		9879	9879		8557	4441	1555	3993		3993	-
		EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	23442704 23442704 20056208 20056208	2	SAVIRIES	2197	2197	0	<b>5</b> 112	2197	2197	2114	0	2114	-
	THUH	EMIS TOP PLANT	-8928058 -8928058 -7408826 -7408826	COAL O	FUEL	20372	20372	0	1/093	2244	2244	1879	0	1879	>
	*** STRATEGY OPTIMUM		် ကိုလ်ခံခခံခ	BOILER	- FE	-33001	-33001	0	0 0	•	0	•	0	0 0	>
		CAPITAL COST \$000	68981648 68931648 52318640 52318640	S SUMMARY 10**12 BTU COAL DERIVED DISTILLATE	; ; ; ; ; ; ;	•	0 0	0	90	•	0	•	0	9 6	,
SULIMARY	B.G.	SAVINGS DOLLARS \$000	5494048 5494043 7111577 0 7111577	3AVINGS SI 10** COAL GAS DI		•	<b>o</b> o		<b>9</b> 0	•	0	•	0	<b>o</b> c	>
NATIONAL SUMMARY	COAL DER.	0 COST 5/	!	NATIONAL FUEL SAVINGS SUMMARY FUEL SAVINGS 10**12 BT UM PETROLEUM COAL DERI ATE BOILER GAS DISTILL	ruel.	6082	6082 3623	0	9953	0	0	0	0	0 0	>
	IR. FIRED,	UTILITY FUEL SAVINGS 10**12 BTU	21586 21586 16394 18394	OLE	1 1 3 1 1 0 1 1	-425	-425	0	90	•	•	0	0	0 0	>
	STEAM INJECT.6/T, DIR. FIRED, COAL DER.	TOTAL C FUEL SAVINGS S 10**12 BTU I	9879 9879 9857 8557 8557	HATURAL PETR GAS DIST	; ; ; ; ; ; ;	14654	14654	0	\$80/	o	0	0	0	0 0	>
YEAR : 1990	HO.20 ADVANCED TECHNOLOGY,STEAM	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING	CATEGORY		SITE PLUS UTILITY TOTAL ALL	FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY	EMISSIONS SAVINGS CASE ONLY	FUEL, COST & EMISSION SAVING	INCLUDING COAL FUEL CONVERSION TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	EMISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES FHEL.COST & FMISSION SAVING	OFFICE & CITOGRAM CALLING

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*** STRATECY OPTIMUM ENISSIONS SAVINGS ECS PITAL ENISSIONS ENISSIONS SAVINGS ECS COST SAVINGS TONS PER YEAR SIZE \$000 RATIO PLANT UTILITY TOTAL (MM)	998 0.366 -89441 162618 73176 13.57	161 0.363 -16116 28979 12863 0.23#	112 0.353 -99355 172732 73376 9.00*	60 0.332 -49236 83275 34039 1.92*	.63 0.155 6027 9455 17482 0.01*	344 0.385 -51537 96292 44754 69.48	0.367 -1	168 0.370 -497045 912496 415441121.28	526 0.370 -135381 248972 113591118.64	127 0.387 -284703 540818 256116 44.99	302 0.290 -114309 182835 68526 80.27	967 0.213 -51030 88825 37796 9.68#	330 0.324 -33750 57565 23815 9.31*	923 0.315 -49683 85929 36246 6.91#	341 0.337 -22137 38476 16341 12.95	157 0.348 -15048 26192 11144 4.57#	051 0.124 -31896 51105 19209 20.77	793 0.027 -77381 100740 23359 15.17	496 0.302 -1219894 2904626 1684732112.78	137 0.315 -62393 ;08401 46008 11.02	003 0.045 -301099 521814 220716 99.42	135 0.145 -16830 36513 19683 6.78*	442 0.314 -93250 160692 67442 9.06*	0.314 -100107 173367	388 - 3509564 6985539 3475969 -3509564 6985539 3475969
3	7 2997998	0 757061	4 2078312	0 1654660	244868	1 602844	0 1668086	4 7347868	5 2045626	459612	4 1513802	94896	9 642830	102592	414841	9 331157	190649 8	11 2142793	1 27336496	3 1443137	4 7271003	6 494135	.2 1850442	6 2306176	74769388
AL(PFB) ST SAVINGS DOLLARS ) \$000	76 -185367	13 -57620	.5 -148924	11398- 16	30 -92251	98 8488	1900	-100604	9 -516	98 492424	901511- 89	11 45090	33939	48088	32 -27584	36. 3829	33 124338	1390431	1618161	17 -6693	55056 6C	123306	3772	F-	5563055
FIRED, COA COST RATIO	0 -0.476	1 -0.403	5 -0.565	8 -0.091	8 -0.180	4 0.195	3 0.004	7 -0.054	8 -0.009	1 0.198	6 -0.258	0 0.071	7 0.12	.4 0.11	.9 -0.382	4 0.036	.8 0.183	.1 0.343	6 0.26	3 -0.017	.4 0.00	.1 0.22	.2 0.023	670.0- 6.	ادودا
DIRECT FIRED,COAL(PFB) UTILITY COST SAVI FUEL DOL SAVIHGS RATIO \$0	152.	27.1	161.	77.8	8.8	4.16	153.	657.7	234.8	499.1	170.8	83.0	53.7	80	35	24.4	47	98	2713.6	101.3	487	3,4	150	161.	6506
SS LEVEL NJECT.G/T TOTAL FUEL SAVINGS	24.3	4.0	19.3	7.5	20.5	16.4	24.0	142.0	39.2	97.8	7.9	10.1	5.8	9.8	4.5	2.9	5.5	13.6	1025.1	12.5	47.2	12.3	18.4		1590
	0.116	0.078	0.000	0.070	0.180	0.137	0.117	0.123	0.123	0.146	0.032	0.058	0.676	0.031	0.089	0.090	0.024	0.011	0.153	0.081	0.010	0.079	0.031	0.072	
CTAS GENERAL SUCHARY - PROC MO.21 ADVANCED TECHNOLOGY,STEAN FUEL ENERA INDUSTRY SAVINGS RAIJO	NO.01 MEAT PACKING	10.02 BAKING	NO.03 MALT BEVERAGE	NO.04 WOVEN FABRIC MILL	HO.05 SAW MILL	NO.06 NEWSPRINT MILL	HO.07 WRITING PAPER HILL	HO.08 CORRUGATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	HO.11 ALUMINA	HO.12 LOW DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STYREME-BUT. RUB.	HO.16 NYLON	HO.17 STYRENE	NO. 18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	NO.23 INTEGRATED STEEL	HO.24 GRAY IRON FOUNDRY	NO.25 COPPER	>	FUEL SAVINGS CASES ONLY

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIOHAL SUMMARY

HO.21 ADVANCED TECHNOLOGY,STEA	EAM INJECT.6/T,DIRECT FIRED,COAL(PFB)	DIRECT F	IRED, COAL(P	FB)	*** STRATEGY OPTIMUM	ATEGY O	PTIMUM				
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 B	COST S	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	S SAVIN R YEAR LITY	5S  TOTAL	
	1 1 1 1	1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1 9 9 9 9 1 1 1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ł	1		
TOTAL ALL	8424	21070		18852816	232933564		-12191320		22907088	10715756	
FUEL SAVINGS CASES ONLY	4248	21070		18852816	232933584		-12191320		22907038	10715756	
COST SAVINGS CASES ONLY	3191	13291		21685424	149951856		-7502944		14613218	7110264	
ENISSIGNS SAVINGS CASE ONLY	39	17		-176827	4693661		15385	:	18124	33510	
FUEL, COST & EMISSION SAVING	1616	15251		0	044451656		0 ************************************		0	0 0 0	
		NAT	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS SI	UMHARY						
			FUEL SAVINGS	ļ	10**12 BTU						
CATEGORY	NATURAL PI GAS D.	PETROLEUM DISTILLATE	PETROLEUM BOILER FUEL	GAS 0	COAL DERIVED DISTILLATE BO F	BOILER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL FUEL		
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1		1 1 1 1 1			1	
SITE PLUS UTILITY								,			
TOTAL ALL	14654	-425	6082	0	0	0	-18260	2197		4248	
FUEL SAVINGS CASES ONLY	14654	-425	6082	0	0 (	0 (	-18260	2197	S i	4248	
LUST SAVINGS CASES UTILI	7/161	Э,	2020	•	>	•	071/1-	9117	1	171	
ENISSIONS SAVINGS CASE ONLY	15	0 (	0	0 (	0 (	0 0	2	13	•	39	
TUEL & CUST SAVINGS CASES	151.6	9	0000	<b>-</b>	<b>.</b>	<b>•</b>	977/1-	917	1	7.6	
FUEL, CUST & EMISSION SAVING	5	0	9	0	5	-	•	•		>	
INCLUDING COAL FUEL CONVERSION											
TOTAL ALL	14654	-425	6082	0	0	9	-18260	2197		4248	
FUEL SAVINGS CASES ONLY	14654	-405	6062	0	0	0	-18260	2197		4248	
COST SAVINGS CASES ONLY	13172	0	5030	0	•	0	-17126	2116	m	3191	
ENISSIONS SAVINGS CASE ONLY	15	0	60	0	0	0	~	13		39	
FUEL & COST SAVINGS CASES	13172	0	5030	0	•	0	-17126	2116	m	3191	
FUEL, COST & ENISSION SAVING	0	•	0	o	0	0	0	•		•	

01 ECS SIZE (HW)	7.87#	0.03*	0.10*	0.17*	0.01*	12.49	4.86*	28.60	24.05	4.04*	1.41*	1.64*	0.64*	*09.0	0.13*	0.37*	4.66*	15.17	12.57	0.57*	7.52*	5.55*	0.47#	0.87*	
HGS  TOTAL	37570	1135	-146	1433	15272	8699	8594	56822	19942	35342	-5665	2876	862	1044	-97	3.69	874	45791	1317936112.57	704	13401	11863	412	898	1573945 1557594 1506568 15272 1503618
EHISSIONS SAVINGS TONS PER YEAR UTILITY TO	90742	3064	1903	7630	3948	17635	20496	139231	48967	49492	3529	14524	5271	7234	390	2035	11734	97239	2784656	5551	47355	26635	8137	9302	3408697 3298131 3263588 3948 3200377
LAN .	-53172	-1929	-2049	-6197	11324	-10936	-11902	-82409	-29025	-14150	5616-	-11648	6055-	-6190	-488	-1645	-10860	-51448	-1466720	9585-	-33955	-16771	-7725	-8405	1834748 -1740536 -1757017 11324 -1696759
*** STRATEGY OPTIMUM PITAL EHISSIONS COST SAVINGS \$000 RATIO P	0.293	0.049	-0.003	0.014	0.136	0.058	0.073	0.132	0.149	0.053	-0.065	0.016	0.012	0.010	-0.007	0.014	0.008	0.052	0.242	0.007	0.003	0.087	0.003	900.0	<b>!</b>
*** STRA' CAPITAL COST \$000	1933996	132686	255351	326667	2323777	235938	400581	1751047	613912	920746	138966	312325	165229	272983	50334	71690	337099	2120717	26702992	316191	3161298	430229	408745	401327	43964768 39209392 36313003 2323777 33818928
OAL(AFB) SAVINSS DOLLARS \$000	-48725	-7710	52237	14696	-83387	43811	83736	490133	136419	286706	34511	19646	22555	45289	12462	7436	164044	1491551	3742849	57048	-35770	114480	83267	61560	6790837 6483603 6966428 -83367 6623425
FIRED,C COST RATIO	-0.125	-0.054	0.198	0.037	-0.163	0.100	0.181	0.261	0.237	0.116	0.078	0.031	0.080	0.100	0.172	0.070	0.242	0.358	0.254	0.141	-0.003	0.205	0.142	0.081	•
G/T,IHDIRECT FIRED,COAL(AFB) UTILITY COST SAVINGS FUEL DOLLARS SAVINGS RATIO \$000	84.8	2.9	1.8	7.1	3.7	16.7	16.3	130.9	46.2	45.7	3.3	13.6	4.9	6.8	4.0	1.9	11.0	4.7	2601.5	5.2	44.2	26.8	7.6	8.7	3187 3083 3051 2992
SS LEVEL NJECTED G/ TOTAL FUEL SAVINGS	17.4	9.0	0.2	4.0-	20.1	6.1	4.2	30.1	10.0	33.9	-7.9	-1.1	-0.3	-0.3	0.2	-0.1	0.1	56.9	813.1	0.0	-11.6	7.7	0.0	-0.1	976 997 949 20 20 959
	0.123	0.014	0.003	-0.004	0.179	0.024	0.037	0.060	0.065	0.051	120.0-	-0.006	-0.004	-0.002	0.010	-0.004	0.001	0.045	0.127	000.0	-0.003	0.050	000.0	000.0	
CTAS GENERAL SUBBARY - FROCE 10.22 ADVABCED TECHBOLOGY,STEAN I FUEL ENERGY INDUSTRY SAVINGS RATIO	HO.01 MEAT PACKING	HO. 02 BAKING	110.03 MALT BEVERAGE	NO.04 WOVEN FABRIC MILL	NO. 05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 WRITING PAPER HILL	NO.03 CORRUGATED PAPER	HO.09 BOX BOARD	NO.10 CHLCRINE	NO.11 ALUMINA	NO.12 LOW DEMS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	HO.15 STYRENE-BUT. RUB.	HO.16 NYLON	HO.17 STYRENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFININS	NO.20 TIRES	HO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 COPPER	HO.26 HOTOR VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE CHLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSICH SAVING

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

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YEAR: 1990 NO.22 ADVANCED TECHNOLOGY,STEAN	M INJECTED G/T, INDIRECT FIRED, COAL(AFB)	T, INDIREC	T FIRED,CO	AL (AFB)	*** STRATEGY OPTIMUM	r OPTIMU	E		•#	07	
CATEGOTY	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BTU		COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		EHISSIONS SAVI TONS PER YEAR PLANT UTILITY	ENISSIONS SAVINGS TONS PER YEAR T UTILITY TO	뛽		
	1 1 1		ł	1		;				!	
TOTAL ALL	2298	7580		25209120	113702112	•	-4508209	8119886	96 3611669	699	
FUEL SAVINGS CASES ONLY	2412	7272		24037232	00952166	•	-4176042	7790974	74 3612629	529	
COST SAVINGS CASES ONLY	2547	7320		25545696	99226944	1	-4353212	784:740	40 3482520	950	
ENISSIONS SAVINGS CASE ONLY	39	7		-159337	4454239		21705	75		:73	
FUEL & COST SAVINGS CASES	2339	7097		24305248	90763904	•	-4094130	7603498	.98 3509367 0	<b>,</b> •	
		NATI	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS SI	UNIMARY						
		ı	FUEL SAVINGS	;	10**12 BTU	!					
CATEGORY	NATURAL PE GAS DI	PETROLEUM DISTILLATE	PETROLEUM EOILER FUEL	6AS D	COAL DERIVED DISTILLATE BOILER FUEL		COAL OI	T OTHER Savings	TOTAL FUEL		
	1							!	;		
SITE PLUS UTILITY						,	ļ	!	1		
TOTAL ALL	14654	-425	6082	0	•		-20210	2197	8622		
FUEL SAVINGS CASES ONLY	12246	-17	4937	0	0 (	97-	-16223	1470	2412		
COST SAVINGS CASES OFILY	21151	4:4:	2480	9 (	<b>-</b>		954/1-	976	1477		
EMISSICHS SAVINGS CASE UNLY	21 21.00	o į	9000	0 6	<b>-</b>		2 5	£ 27	92.50		
FUEL & COST & ENISSION SAVING	0/171	0	0	• •			300				
MOTOGRAPHIC CONT. ELECTION											
TOTAL ALL	14654	-425	6082	٥	0	0 20	-20210	2197	2298		
FUEL SAVINGS CASES ONLY	12246	-17	4937	0	0	0 -16	-16223	1470	2412		
COST SAVINGS CASES CHLY	13112	-425	5460	•	•		-17436	1516	2247		
EMISSIONS SAVINGS CASE ONLY	15	0	8	0	0		٧	13	39		
FUEL & COST SAVINGS CASES	12170	-17	4908	0	0		-16162	1440	2339	•	
FUFL COST & EMISSION SAVING	•	0	0	0	0	0	0	0	0		

01 ECS	SIZE	16.81	*66.0	9.88	2.25#	0.20*	74.15	54.95	755795114.76	100.47	44.88	132.71	17.55	13.24	12.64	14.12	5.44#	20.79	15.19	112.11	20.64	99.18	29.68	16.56	29.55	
NGS	TOTAL	132423	73663	124870	69344	67228	71100	155554	755795	207393100	377939	163679132	100866	56724	103495	27607	20561	29952	42577	2187401112	133754	345427	106428	193161	212870	5780225 5760225 3802229 3802229
EMISSIGMS SAVINGS	TONS PER YEAR UTILITY	201865	123391	190103	105948	98163	108322	236980	1152785	316651	540819	301609	160849	66327	157508	42058	31227	51051	92765	2885935	203305	521614	159959	294426	324003	6362053 6383053 5312335 5312335
	TON PLANT	-69442	-49508	-65232	-36603	-30934	-37222	-91455	166961-	-109258	-162881	-117929	-59963	-29603	-54013	-14451	-10667	-21098	-50188	-698535	-69551	-176387	-53531	-101265	-111133	782 782 782 010
TEGY OPTI EMISSIONS	SAVINGS RATIO	0.563	0.572	0.563	0.563	0.605	0.563	0.563	0.563	0.563	0.582	0.522	0.569	0.564	9.564	0.538	0.564	0.207	0.054	0.414	995.0	0.071	905.0	0.563	0.564	
STRA	COST \$000	1467711	1579563	836839	977614	3682220	318814	742969	3042255	865100	1766361	774850	6 30284	35346 1	650587	165071	178695	309489	1222893	9738127	889560	4039773	550954	1152539	1357910	
B.G. SAVINGS	DOLLARS \$000	-84047	-197365	-63683	9895	-140203	97297	23191	-38204	10625	674450	-125662	119066	40570	37664	-14055	11623	-61095	-192337	650696	-11315	531504	25105	-5297	-36135	1605754 1605754 2575143 2575143
	RATIO	-0.216	-1.382	-0.242	0.025	-0.274	0.223	0.047	-0.020	0.018	0.272	-0.284	0.186	0.144	0.039	-0.194	0.110	-0.090	-0.047	990.0	-0.028	0.050	0.090	-0.009	-0.048	
FIRED, PETROLEUM UTILITY COST	FUEL SAVINGS	188.7	115.3	177.7	99.0	41.7	102.9	188.4	1083.6	298.6	499.1	281.9	150.3	90.6	147.3	39.5	29.1	47.7	90.3	2696.1	190.0	487.4	149.6	275.1	302.6	7612 7812 4928 6928
SS LEVEL CLE,DIRECT TOTAL	FUEL	84.8	40.1	79.8	44.0	45.3	46.0	84.2	484.1	133.0	260.4	103.8	59.7	36.3	÷.99	17.8	13.1	19.2	41.5	1740.5	85.6	207.7	70.3	124.0	136.3	4024 4024 2762 2762 2762
JARY - FROCE OGY, CONB. CY FULL ENERGY	SAVINSS	0.345	0.287	0.347	0.342	0.403	0.350	0.350	0.350	0.349	0.389	0.287	0.339	0.352	0.352	0.330	0.351	0.084	0.033	0.268	0.352	0.046	0.309	0.352	0.327	
ENERAL SUM CEO TECHNOL	IIDUSTRY	NO.01 HEAT PACKING	NO.02 BAKINS	NO.03 HALT BEVERAGE	NO.04 WOVEN FABRIC MILL	HO.05 SAW MILL	MO.06 NEWSPRINT MILL	NO.07 WRITING PAPER MILL	NO.08 CORRUGATED PAPER	KO.09 BOX EDARD	NO.10 CHLORINE	PO.11 ALUMINA	HO. 12 LOM DENS. POLYETHYL	110.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STYRENE-BUT. RUB.	HO.16 NYLON	HO.17 STYRENE	NJ.18 ETHYLENE	HO.19 PETROLEUM REFINING	HO. 20 TIRES	HO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 COPPER	NO.26 NOTOR VEHICLE	
~		NO. 6	3.05	7. ON	NO. 6	NO. 0	2.0x	10.0	NO. 6	K0.0	HO. I	1:0:1	110.1	110.1	1:0:1	1.0.1	1:0:1	нэ. 1	1.CH	1:0:1	110.2	MO.2	NO.2	110.2	1.0.2	TOTAL FUEL COST ENISS FUEL FUEL

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- COGENEZATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURBARY

NC.23 ADVANCED TECHNOLOGY, COMB.CYCLE, DIRECT FIRED, PETROLEUM B.G.	8.CYCLE,DIRECT	r FIRED,PE	TROLEUM B. C		*** STRATEGY OPTINUM	OPTIME				
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10+#12 BTC: 10+#12 BTU	UTILITY FUEL SAVINGS 10#*12 BT	COST S	AVINGS DOLLARS \$000	CAPITAL COST \$000	EI PLANT	HISS TORS	IONS SAVIN PER YEAR UTILITY	55 TOTAL	
	† † † † † † † † † † † † † † † † † † †		•			!				
TOTAL ALL	12559			3162604	114277344	-9515202		28539264	19024048	
FUEL SAVINGS CASES OFILY	12559			3162604	114277344	-9515202		28539264	19024048	
COST SAVINGS CASES GHLY	7865	15218		7359334	61369728	-5171603		16788976	11617172	
EMISSIONS SAVINGS CASE ONLY	0	0		•	0			0	•	
FUEL & COST SAVINGS CASES	7865	15219		7359334	61369728	-5171	-5171803 16768976		11617172	
FUEL, COST & EMISSION SAVING	•	0		•	9		•	•	•	
		MATI	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS SI	UPHARY					
CATEGORY	HATURAL PETROLEUM PETROLEUM GAS DISTILLATE POILER FUEL	PETROLEUM Distillate	FUEL SAVINGS I PETROLEUM E BOILER FUEL	10 CC GAS	10m#12 BTU COAL DERIVED DISTILLATE BOILER FUEL	COAL	OTHER SAVINGS	TOTAL FUEL S	_	
SITE PLUS UTILITY									, ,	
FUEL SAVINGS CASES ONLY	14654	4.04 1.04 1.05	10682-	9 0		4×052	2197		12559	

00
•
•
0

65 ECS SIZE TOTAL (PH)	126032 16.81	*66'0 05069	116671 9.88*	65970 2.25*	64353 0.20*	67673 74.15	145058 54.82	719227114.76	197325100.47	363390 44.88	172546132.71	95156 17.55	54000 13.24	98525 12.64	26276 14.12	19560 5.444	27932 20.79	37672 15.19	2142776112.09	127358 20.64	327922 99.18	167480 31.91	183837 16.56	202644 29.55	5563657 3563657 3687654 3687854 0
ENISSIONS SAVINGS TONS FER YEAR UTILITY TO	201665	153391	190103	105948	98163	108322	236980	1152765	316651	540819	301609	160849	06327	157508	42058	31227	51051	92765	2885678 21	501102	521814	171964	294426	324003	00000
181	-75833	-54334	-71232	-39977	-33610	67907-	-66922	-433559	-119326	-177428	-129261	-65693	-32327	-58983	-15782	-11647	-23119	-55092	-742903	-75947	-193692	-64504	-110568	-121359	-2636160 -2636160 -1636251 -1636251
TEGY OPTI EHISSIONS SAVINGS RATIO	0.527	0.532	0.527	0.527	0.571	0.528	0.528	925.0	0.527	0.550	0.486	0.532	8.528	925.0	0.504	0.528	0.160	0.043	0.366	6.528	0.067	0.471	0.528	0.528	•
«hw STRATEGY OPTINUM CAPITAL EMISSIONS COST SAVINGS SONO RATIO P	1467711	1579563	836839	9172814	3662220	318814	742569	1042255	865100	1766361	774850	630284	353460	650587	168671	176695	309489	1222905	97777875	689560	4039773	534941	1152539	1357910	95993902 37395602 03593602 03595602
B.G. SAVINGS DOLLARS \$000	-64047	-197365	-63683	5686	-140203	97297	23191	-39204	10625	674450	-125662	119066	40570	37664	-14055	11685	-61095	-192345	1036592	-11315	531504	38630	-5287	-36135	
	-0.216	-1.382	-0.242	0.025	-0.274	0.223	0.047	-0.020	0.018	0.272	-0.284	0.166	0.144	0.089	-0.194	0.110	-0.090	-0.047	0.020	-0.028	0.050	0.000	-0.003	-0.048	•
FIRED, COAUTILITY FUEL SAVINGS	188.7	115.3	177.7	99.0	91.7	102.9	183.4	1033.6	298.6	1.69.	281.9	150.3	9.08	147.3	39.2	29.1	47.7	90.3	2095.9	190.0	4.784	160.6	275.1	302.6	4 49 50 50 50 50 50 50 50 50 50 50 50 50 50
SS LEVEL SS LEVEL TOTAL UTLITY COST FUEL FUEL SAVINGS SAVINGS RATIO	84.8	7.07	79.8	0.95	45.3	46.0	84.2	484.1	133.0	260.4	103.8	59.7	36.3	\$ · 99	17.8	13.1	19.2	41.5	1759.5	85.6	207.1	73.8	124.0	136.3	9000 PS PS PS PS PS PS PS PS PS PS PS PS PS
	0.345	0.287	0.347	0.342	0.403	0.350	0.350	051.0	0.349	0.389	0.287	0.339	0.352	0.352	0.330	0.351	0.084	6.033	0.271	352.0	0.046	0.305	0.352	0.327	
CTAS GENERAL SCHINRY - PROCE NO.24 ADVANCED TECHNOLOSI, CONB.CY FUEL ENERGY INDUSTRY SAVILGS RATIO	NO.01 HEAT PACKING	NO.02 BAKING	110.03 HALT BEVERAGE	13.04 HOVEN FARRIC HILL	HO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 UPITHS PAPER HILL	110.08 CORPUSATED PAPER	NO.09 ECX BOAFD	HO. 10 CHLO97HE	110 11 ALUITIA	NO.12 LCM DENS. POLYETHYL	20.13 HZ DENS. POLYETHYL	HO.14 POLYVINKL CHLORIDE	NO.15 STYRENE-PUT. RUB.	KO.16 HTLOH	NO. 17 STYPENE	HO. 18 ETHYLENE	KO.19 PETFOLEUM REFINING	HOLOD TIRES	HO.23 THIESPATED STEEL	NO.24 GRAY IRCH FOUNDRY	на, 25 саррея	LE	TOTAL ALL FLEE SAVINGS CASES ONLY GCST SAVINGS CASES ONLY F11551CAS SAVINGS CASE CALF F116 L COST SAVINGS CASES F0EL-COST SAVINGS CASES

- COGEHERATION TECHNOLOGY A! "F".ATIVES STUDY -

			NAT I OHAL	NATIONAL SURTINARY							
YEAR: 1990 10.24 ADVANCED TECHNOLOGY, COMB. CYCLE, DIRECT FIRED, COAL DER. B.G	.CYCLE,DIRECT	FIRED,CO	AL DER. B.	ن	\$ ***	*** STRATEGY OPTIMUN	TIMOM				•
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT		COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	ENISSIONS SAVINGS TONS PER YEAR - PLANT UTILITY T	SAVING YEAR TY	S TOTAL	
			l			;	1	***************************************		•	
TOTAL ALL	12600	26270		3269936	114322944	*	-10374836	36 28561803		18186960	
FUEL SAVINGS CASES ONLY	12600	26270		3269936	114322944	*	-10374836		•	18185960	
COST SAVINGS CASES ONLY	7905	15239		7466724	61415248	9,	-5623682	62 16811520		11187849	
ENISSICHS SAVINGS CASE ONLY	7905	15.70		7644724	0	<b>0 4</b>	0 547543-	0 0 00 0		0 1187849	
FUEL, COST & EMISSION SAVING		0				9 0				•	
		HATE	HATIONAL FUEL SAVINGS SUMIARY	SAVINGS S	HPBIAR Y						
CATEGORY	HATURAL PETPOLEUM GAS DISTILLATE	PETPOLEUM DISTILLATE	FUEL SAVINGS I PETROLEUM E BOILER	10 CO GAS	10**12 BTU	BOILER		OTHER	TOTAL FUEL		
			FUEL			FUEL	FUEL	SAVINGS	1		
SITE PLUS UTILITY			; ; ; ; ; ;							! •	
TOTAL ALL	14654	-425	6032	٥	•	-34964	25055	2197	12600	90	
FUEL SAVINGS CASES ONLY	14c54	-425	6082	•	0	-3466	25055	2197	12600	90	
COST SAVINGS CASES ONLY	6234	0	3159	0	•	-17187	13611	2089	7	7905	
EMISSICHS SAVINSS CASE ONLY	•	0	0	•	•	•	•	•		•	
FUEL & COST SAVINGS CASES	6234	•	3159	•	0	-17167	136.1	2089	7	7905	
FUEL, COST & EMISSION SAVING	•	0	•	0	•	•	0	0		•	
THOUGHE COAL FUEL CONVERSION											
TOTAL ALL	0	•	0	•	•	•	4123	2197	<b>[9</b>	6320	
FUEL SAVINGS CASES ONLY	9	0	0	•	•	0	4123	2197	9	6320	
COST SAVINGS CASES CHLY	0	0	0	0	•	0	2476	2089	4	4565	
ENISSIONS SAVINGS CASE ONLY	0	0	0	0	0	0	0	0		•	
FUEL & COST SAVINGS CASES	0	•	•	O	0	0	2476	2089	45	4565	
FUEL, COST & EMISSION SAVING	0	0	•	0	•	•	•	0		•	

4GS ECS 91ZE TOTAL (PW)	81845 12.16	14293 0.20*	61347 7.85*	43561 1.97*	17799 0.01*	56624 69.76	95755 38.97	463106108.55	126598106.14	319362 45.16	77225 70.40	45002 9.55#	37710 11.31	72523 11.42	18109 11.29	12045 3.88*	25011 20.84	35402 15.22	2122209112.66	94295 18.74	277367 99.83	24369 6.78*	135611 15.00	149648 26.78	4427006 4427006 3713278 17759 3713278
EMISSIONS SAVINGS TONS PER YEAR UTLLIY TO	145121	25359	150003	83275	9455	96292	167617	813508	221977	540818	159757	87019	73222	141248	33423	<b>32</b> 168	51039	100524	2889351	183318	521814	36327	264805	291553	9599
LANT	-63276	-11066	-68656	-39713	8343	-39667	-71861	-350402	-95379	-221456	-82532	-42018	-35512	-68724	-15313	-10123	-26028	-64922	-767142	-89023	-244447	-119	-129194	-141909	-2681971 -2681971 -2049639 -2049639 -2049639
STRATEGY OPTIMUM L ENISSIONS SAVINGS - RATIO P	655.0	655.0	0.439	0.425	0.158	0.487	0.453	0.452	0.453	0.483	0.363	0.254	0.423	0.426	0.417	0.430	0.161	0.040	0.382	0.427	0.057	0.180	0.425	0.426	
*** STRA CAPITAL COST \$000	3003786	971707	2072352	2020199	2569361	036096	1548819	6722459	1873252	4814805	1384659	1033241	837292	1926091	409095	333526	686619	2249372	27593016	2337675	7362097	551393	2940710	3679113	4889468994889989899899899899898989898989
FB) SAVINGS DOLLARS \$000	-123918	-67961	-81168	-40542	-102992	122615	67979	2995	104168	886069	-31120	63073	35855	21303	-12093	13660	140803	1422064	5379970	-57381	284997	133408	-36466	-112518	8134314 8134314 8300473 -102992 83
ED,COAL(P COST RATIO	-0.318	-0.476	-0.308	-0.102	-0.201	0.281	0.180	0.160	0.181	0.278	-0.070	0.099	0.128	0.050	-0.167	0.10	0.207	0.351	0.365	-0.142	0.027	2.59	-0.062	-0.149	
DIRECT FIRED,COAL(PFB) UTILITY COST SAV FUEL DO SAVINGS RATIO \$	135.7	23.7	140.2	77.8	8.8	91.4	133.3	764.7	209.3	499.1	149.2	81.3	68.3	132.1	31.2	20.7	47.7	97.9	2699.3	171.3	487.4	34.0	247.5	272.3	6624 6624 5367 5367 5367
LEVEL CYCLE TOTAL TUEL	45.3	7.8	41.9	20.9	20.7	33.6	45.4	259.5	71.3	187.0	31.7	21.3	17.7	33.8	9.5	6.2	13.8	31.8	1648.9	43.9	128.1	19.0	63.4	69.7	77-01-
ARY - PROCES OGY, COMBINE FUEL ENERGY SAVINGS RATIO	0.235	0.164	0.218	0.194	0.184	0.280	0.245	445	0.244	0.280	0.139	0.122	0.195	0.195	0.207	0.214	0.060	0.025	0.254	0.195	0.028	0.123	0.195	0.180	
CTAS GENERAL SUMMARY - FROCESS RO.25 ADVANCED TECHNOLOGY,COMBINED FUEL ENERGY 1 INDUSTRY SAVINGS F RATIO SAV	HO.01 HEAT PACKING	HP.02 BAKING	KO.03 MALT BEVERAGE	NO.04 WOVEN FABRIC MILL	HO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 WRITING PAPER HILL	NO.08 CORRUGATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	FO.11 ALUMINA	HO.12 LOW DENS. POLYETHYL	HO.13 HI DENS. POLYETHYL	HO.14 POLYVINYL CHLORIDE	NO.15 STYREME-BUT. RUB.	HO.16 NYLON	NO.17 STYRENE	HO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	HO.23 INTEGRATED STEEL	HO.24 GRAY IRON FOUNDRY	NO.25 COPPER	HO.26 HOTOR VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS WINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

07															
	INGS TOTAL	1331390 1331390 13411 1119769	•	TAL FUEL	; <b>4</b>	8048	7053	40	0	8048	8048	7057	100	7053	10
	EMISSIONS SAVINGS TONS PER YEAR LANT UTILITY T	2257584 2257584 2257584 1846526 1812	•	TOTAL OTHER FUE SAVINGS	7010	2197	2116	13	•	2197	2197	2114	13	2116	) 
TIHUH	EMI TO FLANT	-9261928 -9261928 -7267567 15992 -7267567	<b>*</b>	ا ب	64331	-14460	-14371	3-1417!		-14460	-14460	14471	7/671-	-14171	0
*** STRATEGY OPTIMUM		560 560 77 84	<b>5</b>	EOILER FUEL			0	00		•	0	• •	• •		
[S ***	CAPITAL COST \$000	241717360 241717360 241717360 186759984 4924977 186759984	UMHARY	10**12 BTU -COAL DERIVED		• •	0	00		•	•	• •	<b>,</b>		, 0
FB.)	SAVINGS DOLLARS \$000	27465424 27465424 29066720 -197415	O HATIONAL FUEL SAVINGS SUHHARY	GAS GAS		• •	0	<b>-</b>	. 0	o	0	•			
INED CYCLE, DIRECT FIRED, COAL (PFB)	COST	•	ONAL FUEL	FUEL SAVINGS PETROLEUM E BOILER FUEL	4082	6092	5539	5539	0	6082	6092	55,40	8	5539	0
	UTILITY FUEL SAVINGS 10**12 BTU	2080 2080 2080 1696 1696	U INATI	PETROLEUM DISTILLATE	30	-425	0	00	0	15.5 15.5 15.5	-425		• •		
	TOTAL FUEL SAVINGS 10*12 BTU	8048 8048 70 <b>53</b> 40 7053	<b>5</b>	NATURAL PI GAS DI	24421	14654	13769	13769	0	14654	14654	11769	15	13769	0
YEAR : 1990 NO.25 ADVANCED TECHNOLOGY,COMBI	ראזנסמזיי	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIGHS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES	FUEL, COST & EFTS STUN SAVING	CATEGORY	SITE PLUE UTLITY	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING	INCLUDING COAL FUEL CONVERSION TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SEVENSS CASES ONLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING

SAVINGS RATIO	FUEL FUEL SAVINGS	PATIO	DOLLARS \$000	COST \$000	SAVINGS	PLANT	TONS PER YEAR UTILITY	ENISSIONS SAVINGS TONS PER YEAR UTILITY TOTAL	ECS SIZE (FM)
7 1.73	3	0 -0.106	-41358	2153892	0.355	-37761	79107	41346	6.87#
3.8 15	5.1	1 -0.310	-44283	691615	0.314	-8873	16176	7303	0.14*
18.1 89	9.6	6 -0.237	-62428	1658018	0.305	-55843	95831	39968	5.21*
6.6	49.6	960.0- 9	-37890	1510871	0.216	-30988	53089	22101	1.18*
18.5	8.1	1 -0.210	-107634	2578610	0.138	6813	6698	15512	*10.0
28.2	82.0	0 0.242	105558	833152	165.0	-40839	86302	45463 (	61.55
23.0	85.5	5 0.193	94346	1226041	0.330	-57684	107567	49882	25.89
139.2	470.1	1 0.208	389879	4829370	0.338	-260041	500084	240043103	3.56
39.7	125.	2 0.230	132271	1364735	0.344	-67191	132786	98259	65.68
98.2	342.	9 0.181	450185	3850933	0.268	-194412	371568	177156	30.56
9.6	86.7	7 -0.003	-1137	160856	0.226	-59806	92781	32975	42.26
9.3	47.2	2 0.048	30589	783144	0.118	-29659	50510	20851	5.72*
8.1	39.1	1 0.109	30543	653899	0.230	-24361	41879	17518	6.70*
15.3	73.7	7 0.137	57808	1167746	0.307	-45710	78782	33071	6.92#
4.2	19.	9 -0.130	-9432	329698	0.284	-12468	21390	6922	7.49#
3.0	15.	0 0.056	6665	290276	0.239	-9431	16133	6702	2.93*
10.3	46.2	2 0.194	131725	735832	0.125	-30254	16965	19177	20.94
6.89	4.46	4 0.369	1498249	2330438	0.062	-42744	65696	54205	15.18
1440.6 25	586.6	6 0.334	4925781	29463920	0.326	-997128	2768695	1771568111	11.94
19.8	96.	0 0.017	6914	1591322	0.307	-59538	102738	43200	10.87
73.0	398.	2 0.014	151620	6753785	0.039	-236096	426326	190230	67.62
11.3	25.	5 0.206	114929	498738	0.104	-13139	27240	14101	5.29*
28.6	38.0	6 0.057	33326	2072836	0.305	-86554	148295	17419	8.70*
31.6	53.	0 -0.034	-25532	2648038	0.307	-95308	163859	68551	15.58
	5162 5162 4666 4666 4666	003000	7830023 7830023 8159715 -107634 8159715	70979952 70979952 56461136 2578610 58461136		2489011 -2439011 -2194779 6613 -2194779	100111111111111111111111111111111111111	3047200 3047200 2810502 15512 2810502	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURHARY

	INGS R TOTAL	8673281 8673281 7914711 29733 7914711		OTAL FUEL	5785	5785 5454	35	5454	•	57A5	5785	5454	35	5454	•
	EMISSIONS SAVINGS TONS PER YFAR - PLANT UTILITY T	2 16659357 2 16659357 5 14794866 6 16794866		TOTAL SAVINGS SAVINGS	2197	2197	13	2118	0	9107	2197	2118	13	2118	•
PTIMUM	EM T PLANT	-7986062 -7986062 -6880145 -6880145		COAL	-16723	-16723	7	-16217	•	-14791	-16723	-16217	-	-16217	0
*** STRATEGY OPTIMUM	CAPITAL COST \$000	209184336 209184336 176205968 4942706 176205968	MMARY	COAL DERIVED COAL DERIVED DISTILLATE BOILER FUEL	0	00				Ġ				0	
D.COAL(AFB)	NGS LARS 00	27601408 27601408 28270896 -206314 28270896	NATIOHAL FUEL SAVINGS SUMMARY	6AS	0				0	•					
CT FIRED, COAL	UTILITY COST FUEL SAVINGS 10**12 BTU	15396 15396 13655 13655 13655 0	NATIONAL FUE	FUEL SAVINGS EUM PETROLEUM LATE BOILER FUEL	-425 6082	-425 6082		558	•	2007				0 5580	
COMBINED CYCLE, INDIRECT FIRED, COAL(AFB)	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS	5785 1539 5785 1539 5454 1365 35 15454 1365 0		NATURAL PETROLEUM GAS DISTILLATE	14654	14654	1577.5	13973	0	79774			15	13973	0
YEAR : 1990 10.26 ADVANCED TECHNOLOGY,COMBIL		TOTAL ALL FUEL SAVINGS CASES OHLY COST SAVINGS CASES OHLY EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING		CATEGORY	SITE PLUS UTILITY TOTAL ALL	FUEL SAVINGS CASES ONLY	FULL SAVINGS CASES UNCL	FUEL 1 COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	INCLUDING COAL FUEL CONVERSION	CIBL CAVINGS CAGES ONLY	COST SAVINGS CASES ONE!	EMISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

| 670 7.32          | 592 0.52  | 514 10.11  | 522 1.91   | 513 0.20*  | 214 75.69   | 601 75.82   | 908 90.72   | 687 69.88  | 829 45.20  | 134 42.14   
   
   | 244 18.19  | 441 9.28   | 373 6.64  
  | 535 14.12  | 267 3.85   | 106 20.87   | 664 15.23  
   | 140 85.00  | 933 6.92   | 712 99.08             | 13.71 195   | 089 7.16  
  | 550 12.75  | 620<br>620<br>775<br>0  |
|-------------------|---|--|--|--|---|---|---|--|--
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---|--|--
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--	--	--	---	--	--
113	70	206	92	110	110
   
   | 162  | 53   | 85  
  | 4  | 23   | 5.3   | 110  
   | 1555   | 95   | 518                   | 79  | 134   
  | 147  | 7304620<br>7304620<br>7304620<br>0<br>6689775   |
| 88675             | 65189   | 195149   | 83274  | 98163  | 96292   | 492472  | 2054664   | 76864  | 540819   | 96614   
   
   | 159056   | 57565  | 78782   
  | 42145  | 22168  | 51467   | 119901   
   | 1476619  | 88040  | 521814                | 79390   | 127519  
  | 3  | 6839385<br>6839385<br>6820958<br>0  |
| 24995             | 5403  | 11366  | 2248   | 12350  | 13922   | 32129   | 143243  | 50823  | 57010  | 644-  
   
   | 3187   | 1875   | 3592  
  | 2391   | 1099   | 1639  | 4053   
   | 78521  | 4892   | -3103                 | •   | 1299  
  | 7507   | 465232<br>465232<br>468832<br>468815  |
| 0.930             | 966.0   | 0.910  | 0.851  | 966.0  | 0.965   | 0.987   | 0.980   | 0.993  | 0.921  | 0.654   
   
   | 0.925  | 0.827  | 0.785   
  | 99.0   | 0.849  | 0.366   | 0.137  
   | 0.401  | 0.762  | 0.107                 | 0.611   | 0.762   
  | 0.762  | i   |
| 753084            | 393080  | 685019   | 531319   | 1515035  | 480632  | 6056661   | 8186950   | 742878   | 2478244  | 434126  
   
   | 731404   | 286301   | 410389  
  | 208203   | 108138   | 343187  | 807577   
   | 7379591  | 519633   | 4973788               | 410903  | 640472  
  | 877134   | 36096352<br>36096352<br>36096352<br>30688464  |
| -10524            | -111836   | -335150  | -70700   | -30249   | -35625  | -768325   | -3262821  | -38695   | -135062  | -160417   
   
   | -114899  | -37870   | -46317  
  | -73701   | -12143   | -121841   | -194726  
   | -2361478   | -89351   | -311435               | -72049  | -120476   
  | -171241  | -6687423<br>-6687423<br>-6687423<br>-8215573  |
| -0.027            | -0.783  | -1.272   | -0.178   | -0.059   | -0.082  | -1.571  | -1.738  | -0.067   | -0.054   | -0.362  
   
   | -0.180   | -0.135   | -0.110  
  | -1.019   | -0.114   | -0.180  | -0.048   
   | -0.160   | -0.221   | -0.029                | -0.129  | -0.205  
  | -0.226   | '   |
| 82.9              | 60.9  | 182.4  | 77.8   | 91.7   | 91.4  | 391.6   | 1931.4  | 72.5   | 499.1  | 90.2  
   
   | 148.6  | 53.7   | 73.7  
  | 39.3   | 20.7   | 48.1  | 103.8  
   | 1379.5   | 82.3   | 487.4                 | 74.2  | 119.2   
  | 130.8  | 6333<br>6333<br>0<br>5750<br>0  |
| 52.1              | 17.1  | 44.3   | 15.0   | 32.8   | 27.6  | 98.4  | 502.3   | 37.6   | 158.3  | 13.6  
   
   | 26.4   | 11.1   | 17.1  
  | 9.7  | 4.8  | 12.9  | 49.8   
   | 409.0  | 20.4   | 89.2                  | 12.9  | 29.5  
  | 32.4   | 1724<br>1724<br>1621<br>0   |
| 0.372             | 0.201   | 0.189  | 0.139  | 0.292  | 0.230   | 0.222   | 0.225   | 0.242  | 0.237  | 0.081   
   
   | 0.151  | 0.145  | 0.148   
  | 0.179  | 0.165  | 0.057   | 0.039  
   | 0.079  | 0.150  | 0.020                 | 0.083   | 0.150   
  | 0.132  | '   |
| 0.01 HEAT PACKINS | O. 02 BAKING  | 0.03 MALT BEVERAGE   | 0.04 HOVEN FABRIC HILL   | 0.05 SAW NILL  | 0.06 NEWSPRINT MILL   | O.O7 WRITING PAPER MILL   | O.08 CORRUGATED PAPER   | 0.09 BOX BOARD   | O.10 CHLORINE  | 0.11 ALUMINA  
   
   | 0.12 LOW DENS. POLYETHYL   | 0.13 HI DENS. POLYETHYL  | O.14 POLYVINYL CHLORIDE   
  | ID.15 STYRENE-BUT. RUB.  | 0.16 NYLON   | 0.17 STYPENE  | J. 18 ETHYLENE   
   | O.19 PETROLEUM REFINING  | 0.20 TIRES   | 0.23 INTEGRATED STEEL | 0.24 GRAY IRON FOUNDRY  | O.25 COPPER   
  | O.26 MOTOR VEHICLE   | TOTAL ALL FUEL SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASE FUEL & COST SAVINGS CASES FUEL, COST & FMISSION SAVING |
|                   | 0.372 52.1 82.9 -0.027 -10524 753084 0.930 24995 88675 113670 7 | ACKINS 0.372 52.1 62.9 -0.027 -10524 753084 0.930 24995 88675 113670 7 | 52.1 82.9 -0.027 -10524 753084 0.930 24995 88675 113670 7 17.1 60.9 -0.783 -111836 393080 0.994 5403 65189 70592 0 44.3 182.4 -1.272 -335150 885019 0.910 11366 195149 206514 10 | ACKING 0.372 52.1 82.9 -0.027 -105C4 753084 0.930 24995 68675 113670 7  0.201 17.1 60.9 -0.783 -111836 393080 0.994 5403 65189 70592 0  EVERAGE 0.189 44.3 182.4 -1.272 -335150 885019 0.910 11366 195149 206514 10  FABRIC HILL 0.139 15.0 77.8 -0.178 -70700 531319 0.651 2248 83274 85522 1 | 0.372         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         113670         7           0.201         17.1         60.9         -0.783         -111036         393060         0.994         5403         65169         70592         0           0.189         44.3         182.4         -1.272         -335150         685019         0.910         11366         195149         206514         10           0.139         15.0         77.8         -0.178         -70700         531319         0.651         2248         83274         85522         1           0.292         32.8         91.7         -0.059         -30249         1515035         0.994         12350         98163         110513         0 | 0.372         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         113670         7           0.201         17.1         60.9         -0.783         -111636         393080         0.994         5403         65189         70592         0           0.189         44.3         182.4         -1.272         -335150         685019         0.910         11366         195149         206514         10           0.139         44.3         182.4         -1.272         -335150         685019         0.910         11366         195149         206514         10           0.139         15.0         77.8         -0.176         -70700         531319         0.651         12350         99163         110513         0           0.230         32.6         91.7         -0.059         -35625         460632         0.965         13922         96193         110214         75 | 0.372         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         113670         7           0.201         17.1         60.9         -0.783         -111636         393060         0.994         5403         65189         70592         0           0.189         44.3         182.4         -1.272         -335150         685019         0.910         11366         195149         206514         10           0.139         15.0         77.8         -0.178         -70700         531319         0.651         2246         63274         65522         1           0.292         32.6         91.7         -0.059         -336249         1515035         0.994         12350         98163         110514         75           0.230         27.6         91.4         -0.082         -35625         490469         0.987         32129         492472         524601         75 | 0.372         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         113670         7           0.201         17.1         60.9         -0.783         -111036         393080         0.994         5403         65189         70592         0           0.189         44.3         182.4         -1.272         -335150         685019         0.910         11366         195149         206514         10           0.189         44.3         182.4         -1.272         -335150         685019         0.910         11366         195149         206514         10           0.189         15.0         77.6         -0.176         -70700         531319         0.651         12360         98163         110513         0           0.292         32.6         91.4         -0.059         -35625         156055         13922         96292         110214         75           0.252         98.4         391.6         -1.571         -768325         1999409         0.980         143243         2054664         2197908         9 | 0.372         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         113670         7           0.201         17.1         60.9         -0.783         -111636         393060         0.994         5403         65189         70592         0           0.189         44.3         182.4         -1.272         -335150         685019         0.910         11366         195149         206514         10           0.139         44.3         182.4         -1.272         -335150         685019         0.910         11366         195149         206514         10           0.139         44.3         182.4         -1.272         -335150         685019         0.913         113673         65522         1           0.292         32.6         91.7         -0.059         -35625         460632         0.965         13922         96292         110214         75           0.222         96.4         391.6         -1.571         -768325         1999409         0.980         143243         2054664         2197908         99           0.222         502.3         1931.4         -1.738         -38652         3742876 | 0.372         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         113670         70592         10           0.201         17.1         60.9         -0.027         -111836         393080         0.994         5403         65169         70592         0           0.189         44.3         182.4         -1.272         -335150         685019         0.994         1366         195149         206514         10           0.139         44.3         182.4         -1.272         -335150         685019         0.994         1356         91574         665522         1           0.139         15.0         77.8         -0.176         -70700         531319         0.994         12350         90153         110513         0           0.222         32.6         91.7         -0.062         -35625         1999409         0.986         143243         205464         2197908         90           0.222         99.4         1931.4         -1.738         -3262821         -186950         0.996         143243         205464         2197908         90           0.242         37.6         10.067         -135625 <t< td=""><td>0.372         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         113670         70592         0           0.201         17.1         60.9         -0.023         -111836         393060         0.994         5403         65189         70592         10           0.139         44.3         182.4         -1.272         -335150         685019         0.910         11366         195149         70592         10           0.139         15.0         77.8         -0.178         -70700         531319         0.961         12369         89262         110514         75           0.292         32.6         91.7         -0.059         -30249         1515035         0.994         12350         99163         110514         75           0.230         27.6         91.4         -0.082         -35626         1999409         0.986         19324         90163         110514         75           0.232         98.4         1931.4         -1.738         -3262821         9186950         0.993         90823         76864         127687         87         127687         87         127687         87         127687         87&lt;</td><td>0.372         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         111870           0.201         17.1         60.9         -0.783         -111836         393080         0.994         5403         65189         70592         1           0.189         44.3         182.4         -1.272         -335150         665019         0.994         5403         65189         70592         1           0.139         44.3         182.4         -1.272         -335150         665019         0.910         11366         195149         206514         1           0.139         44.3         182.4         -1.272         -335150         665019         0.910         11366         83274         85522         1           0.139         15.0         91.7         -0.059         -30249         1515035         0.946         12360         86522         1           0.223         27.6         91.4         -0.062         -15622         1999409         0.980         143243         264644         110214         75           0.222         502.1         1931.4         -1.738         -3262821         914694         0.993         1</td><td>0.372         52.1         62.9         6.936         753084         0.936         24995         68675         113670         70592         11360    
    11360         11360         11360         11360         11360         11360         11360         11360         11360         11360         11360         11360         11360         11360         11360         11360         11360         <th< td=""><td>0.372         52.1         62.9         -0.027         -10524         753064         0.930         24995         66055         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592</td><td>0.332         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         11360         70592         0         11600         -10524         753084         0.930         5403         65189         70592         0         0         0         0         0         9403         5403         65189         70592         0         0         0         0         9403         5403         65189         70594         70592         0         0         9904         5403         65189         70592         1         0         0         0         9904         5403         56189         70592         1         0         0         9905         0         9904</td></th<><td>0.330         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         11360         24995         68678         11360         13666         13667         11366         65189         70592         0           0.201         17.1         60.9         -0.783         -111836         99300         0.994         5403         15189         70589&lt;</td><td>0.372         52.1         62.9         -10524         753084         0.930         24995         68675         113670         70592         0         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592</td><td>0.372         52.1         62.9         0.027         753084         0.930         24995         68675         11350         11360         11360         0.934         65189         65189         11360         65189         11360         65189         7055         65189         7055         11           0.201         1,11         60.9         -0.783         111635         0.994         5403         65189         7055         7055         7055         7055         7055         7055         7055         7055         7055         7055         7055         7055         7056         7</td><td>0.312         55.1         62.9         -0.027         -10524         753084         0.930         24995         68675         11350         71850         <t< td=""><td>0 0.372</td><td>0.372         52.1         62.9         0.0274         753064         0.930         24995         66678         113670         7758-1         111636         735060         0.994         5403         665189         70592         0           0.201         17.1         60.9         0.783         -111636         393060         0.994         5403         65189         70592         0           0.189         44.3         162.4         -1.272         -335150         665019         0.910         1136         195149         206514         10           0.139         15.0         77.6         -0.176         -70700         531119         0.651         1954         66552         115651         66551         1954         66552         115652         115651         66551         1954         66552         115651         115652</td></t<><td>0.1372         5.2.1         62.9         -10.624         753.084         0.930         24995         66678         111360         10547         111676         111616         153.084         0.930         2403         65189         70582         0           0.189         44.3         162.4         -1.72         -135180         66519         0.904         1136         65189         70582         0         70582         1           0.189         44.3         162.4         -1.72         -13548         -176         -70700         51319         0.661         1954         9516         10513         0           0.139         15.0         0.17.6         -0.176         -70700         51319         0.661         1954         11560         0.994         11560         9614         11561         11661         1161         1161         1161         1161         1161         1161         1161         1161         1161         1161         1161         11649         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664        
11664         11664         11664         11664         11664<td>0. 5372         52.0         62.0         753064         753064         6.930         24935         68675         111465         753064         6.930         5403         65186         755064         111465         6518         75207         1111636         753060         6.930         6.940         5403         65189         70592         0         70592         0         70594         5403         55187         66518         6.940         11366         15054         70592         10         11366         15054         70592         10         11366         10594         2005         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11367         10         11367         10</td><td>0.1372</td></td></td></td></t<> | 0.372         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         113670         70592         0           0.201         17.1         60.9         -0.023         -111836         393060         0.994         5403         65189         70592         10           0.139         44.3         182.4         -1.272         -335150         685019         0.910         11366         195149         70592         10           0.139         15.0         77.8         -0.178         -70700         531319         0.961         12369         89262         110514         75           0.292         32.6         91.7         -0.059         -30249         1515035         0.994         12350         99163         110514         75           0.230         27.6         91.4         -0.082         -35626         1999409         0.986         19324         90163         110514         75           0.232         98.4         1931.4         -1.738         -3262821         9186950         0.993         90823         76864         127687         87         127687         87         127687         87         127687         87< | 0.372         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         111870           0.201         17.1         60.9         -0.783         -111836         393080         0.994         5403         65189         70592         1           0.189         44.3         182.4         -1.272         -335150         665019         0.994         5403         65189         70592         1           0.139         44.3         182.4         -1.272         -335150         665019         0.910         11366         195149         206514         1           0.139         44.3         182.4         -1.272         -335150         665019         0.910         11366         83274         85522         1           0.139         15.0         91.7         -0.059         -30249         1515035         0.946         12360         86522         1           0.223         27.6         91.4         -0.062         -15622         1999409         0.980         143243         264644         110214         75           0.222         502.1         1931.4         -1.738         -3262821         914694         0.993         1 | 0.372         52.1         62.9         6.936         753084         0.936         24995         68675         113670         70592         11360 <th< td=""><td>0.372         52.1         62.9         -0.027         -10524         753064         0.930         24995         66055         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592</td><td>0.332         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         11360         70592         0         11600         -10524         753084         0.930         5403         65189         70592         0         0         0         0         0         9403         5403         65189         70592         0         0         0         0         9403         5403         65189         70594         70592         0         0         9904         5403         65189         70592         1         0         0         0         9904         5403         56189         70592         1         0         0         9905         0         9904</td></th<> <td>0.330         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         11360         24995         68678         11360         13666         13667         11366         65189         70592         0           0.201         17.1         60.9         -0.783         -111836         99300         0.994         5403         15189         70589&lt;</td> <td>0.372         52.1         62.9         -10524         753084         0.930         24995         68675         113670         70592         0         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592</td> <td>0.372         52.1         62.9         0.027         753084         0.930         24995         68675         11350         11360         11360         0.934         65189         65189         11360         65189 
       11360         65189         7055         65189         7055         11           0.201         1,11         60.9         -0.783         111635         0.994         5403         65189         7055         7055         7055         7055         7055         7055         7055         7055         7055         7055         7055         7055         7056         7</td> <td>0.312         55.1         62.9         -0.027         -10524         753084         0.930         24995         68675         11350         71850         <t< td=""><td>0 0.372</td><td>0.372         52.1         62.9         0.0274         753064         0.930         24995         66678         113670         7758-1         111636         735060         0.994         5403         665189         70592         0           0.201         17.1         60.9         0.783         -111636         393060         0.994         5403         65189         70592         0           0.189         44.3         162.4         -1.272         -335150         665019         0.910         1136         195149         206514         10           0.139         15.0         77.6         -0.176         -70700         531119         0.651         1954         66552         115651         66551         1954         66552         115652         115651         66551         1954         66552         115651         115652</td></t<><td>0.1372         5.2.1         62.9         -10.624         753.084         0.930         24995         66678         111360         10547         111676         111616         153.084         0.930         2403         65189         70582         0           0.189         44.3         162.4         -1.72         -135180         66519         0.904         1136         65189         70582         0         70582         1           0.189         44.3         162.4         -1.72         -13548         -176         -70700         51319         0.661         1954         9516         10513         0           0.139         15.0         0.17.6         -0.176         -70700         51319         0.661         1954         11560         0.994         11560         9614         11561         11661         1161         1161         1161         1161         1161         1161         1161         1161         1161         1161         1161         11649         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664<td>0. 5372         52.0         62.0         753064         753064         6.930         24935         68675         111465         753064         6.930         5403         65186         755064         111465         6518         75207         1111636         753060         6.930         6.940         5403         65189         70592         0         70592         0         70594         5403         55187         66518         6.940         11366         15054         70592         10         11366         15054         70592         10         11366         10594         2005         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11367         10         11367         10</td><td>0.1372</td></td></td> | 0.372         52.1         62.9         -0.027         -10524         753064         0.930         24995         66055         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592 | 0.332         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         11360         70592         0         11600         -10524         753084         0.930         5403         65189         70592         0         0         0         0         0         9403         5403         65189         70592         0         0         0         0         9403         5403         65189         70594         70592         0         0         9904         5403         65189         70592         1         0         0         0         9904         5403         56189         70592         1         0         0         9905         0         9904 | 0.330         52.1         62.9         -0.027         -10524         753084         0.930         24995         68675         11360         24995         68678         11360         13666         13667         11366         65189         70592         0           0.201         17.1         60.9         -0.783         -111836         99300         0.994         5403         15189         70589< | 0.372         52.1         62.9         -10524         753084         0.930         24995         68675         113670         70592         0         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         113670         70592         70592      
  70592         70592 | 0.372         52.1         62.9         0.027         753084         0.930         24995         68675         11350         11360         11360         0.934         65189         65189         11360         65189         11360         65189         7055         65189         7055         11           0.201         1,11         60.9         -0.783         111635         0.994         5403         65189         7055         7055         7055         7055         7055         7055         7055         7055         7055         7055         7055         7055         7056         7 | 0.312         55.1         62.9         -0.027         -10524         753084         0.930         24995         68675         11350         71850 <t< td=""><td>0 0.372</td><td>0.372         52.1         62.9         0.0274         753064         0.930         24995         66678         113670         7758-1         111636         735060         0.994         5403         665189         70592         0           0.201         17.1         60.9         0.783         -111636         393060         0.994         5403         65189         70592         0           0.189         44.3         162.4         -1.272         -335150         665019         0.910         1136         195149         206514         10           0.139         15.0         77.6         -0.176         -70700         531119         0.651         1954         66552         115651         66551         1954         66552         115652         115651         66551         1954         66552         115651         115652</td></t<> <td>0.1372         5.2.1         62.9         -10.624         753.084         0.930         24995         66678         111360         10547         111676         111616         153.084         0.930         2403         65189         70582         0           0.189         44.3         162.4         -1.72         -135180         66519         0.904         1136         65189         70582         0         70582         1           0.189         44.3         162.4         -1.72         -13548         -176         -70700         51319         0.661         1954         9516         10513         0           0.139         15.0         0.17.6         -0.176         -70700         51319         0.661         1954         11560         0.994         11560         9614         11561         11661         1161         1161         1161         1161         1161         1161         1161         1161         1161         1161         1161         11649         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664<td>0. 5372         52.0         62.0         753064         753064         6.930         24935         68675         111465         753064         6.930         5403         65186         755064         111465         6518         75207         1111636         753060         6.930         6.940         5403         65189         70592         0         70592         0         70594         5403         55187         66518         6.940         11366         15054         70592         10         11366         15054         70592         10         11366         10594         2005         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11367         10         11367         10</td><td>0.1372</td></td> | 0 0.372               | 0.372         52.1         62.9         0.0274         753064         0.930         24995         66678         113670         7758-1         111636         735060         0.994         5403         665189         70592         0           0.201         17.1         60.9         0.783         -111636         393060         0.994         5403         65189         70592         0           0.189         44.3         162.4         -1.272         -335150         665019         0.910         1136         195149         206514         10           0.139         15.0         77.6         -0.176         -70700         531119         0.651         1954         66552         115651         66551         1954         66552         115652         115651         66551         1954         66552         115651         115652 | 0.1372         5.2.1         62.9         -10.624         753.084         0.930         24995         66678         111360         10547         111676         111616         153.084         0.930         2403         65189         70582         0           0.189         44.3         162.4         -1.72         -135180         66519         0.904         1136         65189         70582         0         70582         1           0.189         44.3         162.4         -1.72         -13548         -176         -70700         51319         0.661         1954         9516         10513         0           0.139         15.0         0.17.6         -0.176         -70700         51319         0.661         1954         11560         0.994         11560         9614         11561         11661         1161         1161         1161         1161         1161         1161         1161         1161         1161         1161         1161         11649         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664         11664 <td>0. 5372         52.0         62.0         753064         753064         6.930         24935         68675         111465         753064         6.930         5403         65186         755064         111465         6518         75207         1111636         753060         6.930         6.940         5403         65189         70592         0         70592         0         70594         5403         55187         66518         6.940         11366         15054         70592         10         11366         15054         70592         10         11366         10594         2005         11366         10         11366         10         11366         10         11366         10         11366         10    
    11366         10         11366         10         11366         10         11367         10         11367         10</td> <td>0.1372</td> | 0. 5372         52.0         62.0         753064         753064         6.930         24935         68675         111465         753064         6.930         5403         65186         755064         111465         6518         75207         1111636         753060         6.930         6.940         5403         65189         70592         0         70592         0         70594         5403         55187         66518         6.940         11366         15054         70592         10         11366         15054         70592         10         11366         10594         2005         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11366         10         11367         10         11367         10 | 0.1372  |

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY -NATIONAL SUBBARY

			HATIOHAL SUINIARY	SUITITARY						
YEAR : 1990 10.27 ADVANCED TECHNOLOGY, FUEL	CELL, LOW TEMP., PETROLEUM DISTILLATF	IP., PETROL	EUM DISTIL	LATF	*** S1	*** STRATEGY OPTIMUM	TIMUM			
CATEGORY	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BTU	COST S	COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR - PLANT UTILITY T	SAVINGS YEAR IY TOTAL	. <b>ب</b>
	\$ \$ \$ \$ 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	İ			!	***************************************	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		!
TOTAL ALL	6778	25331	7	-37767360	135447216	9	1985403	03 28106992	992 30092416	416
FUEL SAVINGS CASES ONLY	6778	25331	•	-37767360	135447216	91	1985403	03 28106992	992 30092416	915
COST SAVINGS CASES ONLY	0	0		0		•		•		•
EMISSIONS SAVINGS CASE ONLY	9959	23462	ĺ	-35508304	121415392	22	1996316	16 26105760	760 28102080	080
FUEL & COST SAVINGS CASES	0	0		0		0		•	•	0
FUEL, COST & ENISSION SAVING	0	0		e		0		0	•	0
CATEGORY	F NATURAL PETROLEUM GAS DISTILLATE	FU PETROLEUM DISTILLATE	FUEL SAVINGS PETROLEUM E BOILER FUEL	10 CO GAS	10**12 BTU - COAL DERIVED DISTILLATE	BOILER	COAL	T OTHER SAVINGS	TOTAL FUEL	
	5 5 5 6 6	) ) ) ) ) !		1	!	1 1 1 1	; ; ; ;	;	 	
SITE PLUS UTILITY		1	:	•	•	•			,	
TOTAL ALL	14654	\$6/22-	96411-	<b>-</b>	9 (	<b>.</b>	91162	7412	8//0	
FUEL SAVINGS CASES ORLY	\$005T	\$6/22-	95 to 7 T ~	<b>3</b> 6	<b>.</b>	3 6	91147	613	0/0	
COOL CANTINGO CACIO CACIO	19245	00.00	11001	•	• •	•	24054	1545	4444	
FIRE A COST SAVINGS CASES	0	0				0	0	0		
FUEL, COST & EMISSION SAVING	0	0	•	0	0	0	0	٥	•	
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14654	-22753	-11436	0	•	•	24116	2197	6778	
FUEL SAVINGS CASES ONLY	14654	-22753	-11436	0	0	0	24116	2197	6778	
COST SAVINGS CASES ONLY	0	0	0	0	0	•	0	0	0	
ENISSIONS SAVINGS CASE ONLY	12765	-20792	-12011	0	0	0	24958	1545	9959	
FUEL & COST SAVINGS CASES	0	0	0	0	0	9	0	0	0	
FUEL, COST & EMISSION SAVING	0	٥	0	0	0	٥	•	٥	•	

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CTAS GENERAL SUNDARY - PROCESS LEVEL NO.28 ADVARICED TECHROLOGY,FUEL CELL,LGW T FUEL ENERGY TOTAL THOUSTRY SAVINS FUEL RATIO SAVINSS	C) DE UN	CELS.LGW TEMP,COAL DERIVED DIST CELL,LGW TEMP,COAL DERIVED DIST GGY TOTAL UTILITY COST S FUEL FUEL SAVINGS SAVINGS RATIO	TP,COAL DE UTILITY FUEL SAVINGS	RIVED DI COST RATIO	ST SAVINGS DOLLARS \$000	*** STR/ CAPITAL COST \$000	*** STRATEGY OPTIMUM PITAL EMISSIONS COST SAVINGS \$COO RATIO P	LANT	EHISSIONS SAVINGS TONS PER YEAR UTILITY TO	INGS  TOTAL	01 ECS SIZE (HH)
NO.01 MEAT PACKING	0.404	56.4	82.9	-0.073	-26434	975802	0.796	11580	88685	100265	7.31
HO.02 BAKING	0.246	9.6	15.7	-0.062	-8879	159274	0.791	1625	16786	18411	0.16*
HO.03 HALT BEVERAGE	0.379	53.3	88.7	-0.218	-57449	571986	0.768	7692	94836	102528	4.88
NO.04 WOVEN FACRIC MILL	0.165	17.8	77.8	-0.300	-119102	909204	0.725	-8956	83274	74319	2.19
NO.05 SAW MILL	0.291	32.6	91.7	-0.128	-65289	1792019	0.771	-11270	98163	86893	0.20*
HO.06 NEWSPRINT MILL	0.267	32.0	4.16	-0.076	-32948	551096	0.759	-8057	96292	88234	68.92
NO.07 KRITING PAPER MILL	0.404	56.1	86.5	0.062	30262	643933	0.794	12134	106827	120960	24.85
NO.08 CORRUGATED PAPER	0.412	321.6	480.5	0.003	5569	2862332	0.796	63137	511169	574306	96.99
NO.09 BOX BOARD	0.411	88.3	132.6	0.041	23470	806712	0.795	17108	140565	157674	99.00
NO.10 CHLORINE	0.250	167.0	499.1	-0.110	-273649	3336273	0.752	-43766	540818	497052	46.47
HO.11 ALUHHA	0.098	37.8	306.6	-1.725	-763480	1717902	0.659	-76899	328271	251372	95.68
NO.12 LOW DENS. POLYETHYL	0.151	26.4	148.6	-0.232	-148558	968164	0.688	-37118	159056	121938	16.19
NO.13 HI DENS. POLYETHYL	0.142	13.3	70.9	-0.332	-93353	460832	0.637	-17474	76004	58530	11.65
HO.14 POLYVINYL CHLORIDE	0.142	24.3	130.0	-0.490	-207021	844215	0.637	-31963	138974	10701	11.14
NO.15 STYREME-BUT. RUB.	0.238	5.7	9.1	-0.050	-3643	74313	0.526	672	9733	10405	3.23
NO.16 NYLON	0.155	4.5	20.7	-0.183	-19460	140797	0.654	-3855	22168	18312	3.85
HO.17 STYRENE	0.132	30.1	48.3	-0.105	-71098	397836	0.350	2791	51704	54495	20.85
NO.18 ETHYLENE	990.0	83.0	104.1	-0.026	-105550	937752	0.124	3298	106901	110213	15.19
NO.19 PETROLEUM REFINING	0.089	575.3	2679.3	-0.412	-6071728	17570368	0.399	-657052	2867927	2210876	82.51
NO.20 TIRES	0.150	16.4	55.8	-0.125	-50545	539916	0.532	-7390	59693	51802	6.90
HO.23 INTEGRATED STEEL	6.019	85.0	437.4	-0.041	0+615+-	5781080	0.081	-126624	521814	195191	98.90
NO.24 GRAY IRON FOUNDRY	0.083	12.9	74.2	-0.162	-90367	543963	0.435	-20362	79390	59029	17.21
NO.25 COPPER	0.176	28.5	82.6	-0.231	-136001	1086825	0.701	11440	98446	99886	8.73
HO.26 MOTOR VEHICLE	0.143	29.9	93.8	-0.284	-215397	1513610	669.0	11568	100465	112053	16.54
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CHLY EMISSICHS SAVINGS CASE ONLY FUEL A COST SAVINGS CASES FUEL, COST & EMISSICH SAVING		000000	5958 5958 760 760 700 700		-8944506 -8944506 -8944506 59302 -567151 59302	45186080 45136080 4313026 4313026 4313026 4313026	i	-906221 -906221 92379 14375 92379	6389967 6389967 760561 1318129 760561	5481747 5481747 852940 1461192 852940 852940	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUFFMRY

02														
	INGS	18733886 18733886 4788957 6674851 4788957 4788957		TAL FUEL	6597	6597	3596	2509	104	603	1734	5469	1734	1734
	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	21160192 4280699 4280699 4280699		TOTAL OTHER FUE SAVINGS	2197	2197	93	0 6		2197	•	93	•	0
THE	EMI TO PLANT	-2426285 -2426285 -2426285 508257 508257 508257		COAL	18385	18385	6133	4316	305-1	-1594	1734	2375	1734	1734
*** STRATEGY OPTIMEN		1 33000		BOILER	-15942	-15942	-8381	<b>o</b> c	· c	•	•	0	0	•
*** S	CAPITAL COST \$000	138985424 138985424 138985424 2455 3840 41500688 2456 3840	SUPPLARY	10**12 BTU · COAL DERIVED AS DISTILLATE	-18355	-18355	-5471	-3624	•	•	0	•	0	0
<b>L</b>	COST SAVINGS DOLLARS \$000	-25775440 -25775440 568353 -1333753 568353	NATIONAL FUEL SAVINGS SUMMARY	6AS CO	•	9 6	•	•		•	•	0	•	0
ERIVED DIS			IONAL FUEL	FUEL SAVINGS PETROLEUN E BOILER FUEL	6082	6082	2934	853			0	•	0	0
EMP,COAL D	UTILITY FUEL SAVINGS J 10**12 BTU	19600 7 19600 3791 5 5471 9 3791	NAT	PETROLEUM DISTILLATE	-425	-425	7	•	· c	•	0	0	0	0
CELL, LOW TEMP, COAL DERIVED DIST	TOTAL FUEL SAVINGS 10**12 BTU	6597 6597 2509 3596 3596 2509		NATUPAL P	14654	14654	8305	965		•	•	0	0	0
YEAR : 1990 NO.28 ADVANCED TECHNOLOGY,FUEL	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST \$ FITSSION SAVING		CATEGORY	SITE PLUS UTILITY TOTAL ALL	FUEL SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	HCLUDING COAL FUEL CONVERSION	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

ENERAL SUND CED TECHOLO	IARY - PROCE ISY,FUEL CEL FUEL ENERGY	SS LEVEI L,MIGH 1	EMP., PETROL UTILITY	., PETROLEUM DIST	SAVINGS	*** STRA CAPITAL	### STRATEGY OPTIMUM PITAL EMISSIONS		EMISSIONS SAVINGS	INGS	ECS
INDUSTRY	SAVINGS	FUEL	FUEL	RATIO	5000 \$000	\$000 \$000	SAVINGS	PLANT	IONS PER TEAR	TOTAL	(MI)
NO. 01 HEAT PACKING	0.430	73.3	113.5	-0.093	-36320	1154668	0.789	968	121367	122262 1	9.04
BAKING	0.310	49.67	135.1	-1.511	-215747	956339	0.813	-22310	144535	122226	1.15
NO.03 HALT BEVERAGE	0.285	6.99	182.5	-0.949	-249878	1022035	0.725	-30592	195166	164573 1	10.12
HO. 04 HOVEN FABRIC HILL	0.332	177.4	504.6	-1.796	-712147	3120119	0.811	-87845	240005	452160 11	1.49
SAH MILL	0.428	48.0	91.7	0.037	18895	1659045	0.829	-6076	98163	92087	0.20*
NO.06 HEUSPRINT MILL	0.351	42.1	4.16	0.021	6706	590757	0.800	-4948	26296	91344 8	83.20
HO.07 WRITING PAPER HILL	0.340	210.8	567.5	-1.727	-845257	3242658	0.805	-107671	713800	605929 82	2.51
NO. 08 CORRUGATED PAPER	0.332	740.5	1931.3	-1.247	-2340875	9359499	0.783	-297913	2054571	1756658 9	90.06
NO.09 BOX BOARD	0.340	262.4	653.5	-1.451	-834479	3287305	0.798	-106496	730080	623584 9	99.18
HO. 10 CHLORINE	0.355	237.6	499.1	0.048	120072	3090034	977.0	-38597	540819	502221 4	48.79
HO.11 ALUMINA	0.269	103.4	305.3	-0.95	-422804	1469500	0.717	-56467	326844	270378 9	95.36
LOW DEHS. POLYETHYL	0.339	150.4	418.6	-0.631	-403120	2064895	0.812	-70982	448155	377173 4	48.67
40.13 HI DENS. POLYETHYL	0.334	147.4	419.2	-1.963	-551304	2031561	0.811	-73131	449130	375999 6	68.83
HO.14 POLYVINYL CHLORIDE	0.333	254.5	722.8	-2.311	-977277	3521043	0.810	-125624	772941	647317 6	61.99
STYREME-BUT. RUB.	0.269	14.4	36.9	-0.760	-54970	238025	0.689	-6599	41748	35149 1	14.00
HO.16 NYLON	0.337	47.3	132.4	-1.584	-168892	675300	0.811	-22582	141978	119396 2	24.71
KD.17 STYRENE	0.083	18.9	48.2	-0.146	-99131	376520	0.290	-9418	51510	42092 2	20.90
NO.18 ETHYLENE	0.050	62.7	103.3	-0.036	-146039	878124	0.109	-19344	106095	86751 1	5.17
HO.19 PETROLEUM REFINING	0.165	1078.2	2726.5	-0.250	-3680111	15278874	0.463	-457435	2918408	2460973	83.91
NO.20 TIRES	0.327	195.0	541.9	-1.898	-768855	3182458	0.795	-91844	579903	488059 5	58.62
HO.23 INTEGRATED STEEL	0.037	166.1	492.9	0.001	13038	4815012	0.089	-93822	527759	433936 8	80.17
NO.24 GRAY IRON FOUNDRY	0.164	25.4	74.2	-0.045	-25185	469677	965.0	-14980	79390	64411 1	7.21
NO.25 COPPER	0.328	288.6	803.7	-1.828	-1074903	4005725	0.796	-136932	860037	723105 4	48.33
VEHICLE	0.319	330.0	,	-1.816	-1376160	5730184	0.797	-156948	985428	628480	89.81
FUEL SAVINSS CASES CHLY FUEL SAVINSS CASES CHLY FUELS SAVINSS CASE OHLY FUEL L COST SAVINSS CASE OHLY FUEL L COST SAVINSS CASES FUEL, COST & FILESION SAVING	~ .0	74791 74791 7487 7487	1125		M M O M O		1	-2037857 -2037857 -143443 -143443	13524116 13524116 1263032 121367 1263032	11486257 111486257 1119569 122262 1119589	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUPPARY

YEAR : 1990 NO.29 ADVANCED TECHOLOGY,FUEL	CELL, HIGH TEMP., PETROLEUM DIST.	IIP., PETROL	EUM DIST.	N DIST.	*** STRATEGY OPTINUM	SY OPTI	5				07
CATEGORY		UTILITY FUEL SAVINGS 10**12	1500		CAPITAL COST \$000		EM)	o z	¥	S TOTAL	
TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES CHLY EHISSICHS SAVINGS CASE CHLY FUEL & COST SAVINGS CASES FUEL, COST & EHISSICH SAVING	17625 17625 1570 141 1570	46929 46929 3602 3602 217 3602	'	-57199024 -57199024 -57199024 -65806 -65806 465806	260438592 260438592 2613596 2213279 28139488	i	-7763149 -7763149 -351840 -351840	51689248 9 51689248 9 51689248 0 3847291 0 3847291	1	43926112 43926112 3495451 234354 3495451	
CATEGORY	NAT NATURAL PETROLEUM GAS DISTILLATE	NATI PETROLEUM DISTILLATE	TIONAL FUEL SPUTHGS FUEL SAVINGS E BOILER FUEL	SAVINGS 10 CO GAS	S SUPPLARY  10**12 BTU  COAL DERIVED  DISTILLATE BOILER  FUEL	Cz.	COAL C	OTHER	TOTAL FUEL		
SITE PLUS UTILITY TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE FUEL & COST SAVINGS CASES FUEL & COST SAVINGS CASES	14654 14654 1761 61 1761	-33611 -33611 -2746 -152 -2746	-11129 -11129 693 -12 693	60000	00000		45714 45714 1198 240 1198	2197 2197 664 4 664	17625 17625 1570 141 1570		
INCLUDING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE FUEL & COST SAVINGS CASES FUEL & COST SAVINGS CASES	14654 14654 1761 61 1761	-33611 -33611 -2746 -152 -2746	-11129 -11129 693 -12 693	999999	99909	00000	45714 45714 1198 240 1198	2197 2197 664 664 664	17825 17825 1570 141 1570 0		

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01 VINGS ECS R SIZE TOTAL (F4.)	111067 6.52	132207 1.33	117981 5.97	78739 1.90	90412 0.20*	66798 68.68	136216 30.30	650732 80.74	174933 77.21	523838 44.55	107907 46.52	204469 28.08	57093 9.21	100732 7.97	26230 8.50	21678 3.83	51208 20.06	107061 15.23	2872993 84.25	128771 12.81	449868 98.28	73892 17.20	186221 10.30	204916 18.35	669996 6699996 2448930 1839819 2448930 1064615
EHISSIONS SAVINGS TONS PER YEAR UTILITY TO	103276	166236	115614	63274	98163	96292	132369	615020	164097	540818	112055	258438	57565	100219	25611	22168	51679	107424	2904785	127416	521814	79390	184878	203032	6872096 6872096 2511207 1772000 2511207
EA!	7811	-34029	2167	-4535	-7751	-7493	5829	35712	10837	-16981	-4148	-53949	-472	513	418	064-	-471	-363	-31793	1355	-71%6	-5499	1344	1834	-172100 -172100 -62276 -62276 -62276 52891
*** STRATEGY OPTIMUM PITAL EHISSIONS COST SAVINSS \$000 RATIO P	0.790	9.765	0.781	0.768	0.603	9.764	0.736	0.788	0.789	0.792	0.653	0.739	0.777	0.779	0.731	0.774	0.329	0.121	0.515	0.780	0.092	0.545	0.779	0.780	i
*** STRA' CAPITAL COST \$000	840168	963712	518662	495875	1532014	401891	583434	2564735	706899	2275723	448741	1080751	260700	436662	124048	100603	328448	773774	14456099	642819	4748986	405119	790279	1102075	35533168 36533168 14513637 8309776 14513637 4291728
ST. SAVINGS DOLLARS \$000	-8605	-249819	-55590	8666	34984	20229	32455	31203	40911	359740	-55624	-140741	29883	31724	-12955	1066	-62663	-68162	-2454695	-18493	519342	6653	-15619		-2055681 -2055681 1127317 -36705 1127017
DER. DIS COST RATIO	-0.023	-1.743	-0.211	0.025	0.068	0.046	990.0	0.017	0.071	0.145	-0.126	-0.233	0.106	0.075	-0.179	0.093	-0.092	-0.017	-0.164	-0.046	650.0	0.012	-0.027	-0.081	
TEMP, COAL DER. DIST UTILITY COST S FUEL SAVIRGS RATIO	96.5	155.4	108.3	77.8	91.7	91.4	105.3	578.1	154.7	499.1	104.7	241.5	53.7	93.7	24.1	20.7	48.3	104.6	2713.7	119.1	4.7.4	74.2	172.8	189.6	6407 6407 2328 1642 2326 932
	64.4	51.5	4.29	36.3	40.0	39.4	64.8	369.3	100.7	276.2	52.3	79.0	29.0	52.4	14.0	10.6	29.0	85.6	1494.9	67.4	268.7	34.7	7.79	107.3	3536 3536 1330 1000 1330 557
Y - PROCESS LEVEL Y,F'MEL CELL, HIGH EL EMERGY TOTAL SAVINGS FUEL RATIO SAVINGS	0.419	0.287	0.339	0.337	0.428	0.329	0.411	0.420	0.425	0.413	0.285	0.295	0.379	0.388	0.362	0.368	0.127	0.063	0.230	0.390	0.059	9.224	0.390	0.352	'
CTAS GENERAL SUMMERY - PROCESS LEVEL RO.30 ADVANCED TECHNOLOGY, FYEL CELL, HIGH FUEL ENERGY TOTAL SAVINGS FUEL RATIO SAVINGS	HO.01 HEAT PACKING	NO.02 BAKING	HO.03 MALT BEVERAGE	NO.04 KOVEN FAERIC MILL	HO. 05 SAW MILL	NO.06 NEWSPRINT MILL	HO.07 WRITINS PAPER MILL	NO.08 CORRUGATED PAPER	HO.09 BOX EDARD	HO.10 CHLORINE	NO.11 ALBIINA	HO.12 LOW DEMS. POLYETHYL	NO.13 HE DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STYRENE-BUT. RUB.	NO.16 NYLON	NO.17 STYRENE	HO.18 ETHYLENE	HO.19 PETROLEUN REFIHING	HO.20 TIRES	1.0.23 INTECRATED STEEL	HO.24 GPAY IRON FOUNDRY	NO.25 COPPER		TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CRUY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL & COST SAVINGS CASES

- COGEMERATION LECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUPPLARY

900			NATIONAL	NATIONAL SUNIURY							
NO.30 ADVANCED TECHNOLOGY, FUEL	CELL, HIGH TEMP, COAL DER. DIST.	EHP, COAL	DER. DIST	, •	N ###	*** STRATEGY OPTIMEN	TIMM				2
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10##12 BT	COST	SAVINGS DOLLARS \$000	CAP17AL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	9	S TOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING	10767 10767 5269 4009 5269 3145	19453 19453 9235 6513 9235 5027	:	-4231345 -4231345 -4231345 3315945 557065 3315945	105474888 105474888 105474888 50656880 32578224 50656880 24220128		-458140 -458140 -458140 -45820 30964 -45820 279421	21050448 21050448 21050448 0 10147429 0 10147429	1 22 -	20592364 20592304 10101608 7552581 5931109	
		HATI	HATIOHAL FUEL SAVINGS SUMMARY	SAVINGS S	UPBIARY						
CATEGORY	NATURAL PETR GAS 015T	OLEUM	FUEL SAVINGS   PETROLEUM   FOR BOILER   FUEL	evs (	10##12 BTU COAL DEPIVED	POST FOR L	COAL	OTHER	TOTAL FUEL		
SITE PLUS UTILITY TOTAL ALL	14654	-425	2909	•	-16427	-13552	16236	2197	10767		
FUEL SAVINGS CASES ONLY	14654	-425	6062	•	-16427	-13552	18238	2197	10767		
COST SAVINGS CASES ONLY EMISSICUS SAVINGS CASE ONLY	2985	-17	1006	<b>.</b>	-7578	-105	7442	£ 2	5269	<b>.</b>	
FUEL & COST SAVINGS CASES	2985	•	1746	•	-7578	-105	7442	13	5269		
FUEL, COST & EMISSION SAVING	1072	•	890	0	-4429	2-	5593	2	3145		
THE LUBING COAL FUEL CONVERSION	•	•	•	•	•	•			•	٠	
CONTRACT CAUTHOR THE VICE	•	<b>9</b> (	<b>.</b>	9 6	• •	<b>&gt;</b> ¢	44.93	1617	1700		
FUEL DAVINGS CASES UNLY	<b>&gt;</b> (	•	•	•	<b>-</b>	<b>&gt;</b> (	/254	1617	2000	• .	
COST SAVINGS CASES ONLY	9 (	•	0 (	o (	0	<b>5</b>	3225	779	4004		
EMISSICHS SAVINGS DASE UNLY	<b>D</b> •	<b>.</b>	<b>&gt;</b> <	0 (	<b>5</b>	٥ (	2542	2 1	5097	٠.	
FUEL & COSY SAVINGS CASES	9 6	9 6	<b>o</b> c	<b>9</b> C	<b>o</b> c	0 6	3225	779	4004	• •	
TOELSTOOT & CHAUSION ON AND	•	,	•	,	,	•	902	7	7		

6 5	573 - 5726 AL (124)	105122 6.54*	20821 0.16*	122564 5.27#	71159 1.28#	*10.0 22222	106251 68.65	143502 26.81	676347107.14	162111 66.42	464255 30.81	114918 44.14	40572 5.45#	40705 7.96#	101287 4.83#	*85.7 27272	21366 3.13#	60489 28.84	126486 15.17#	1865499 89.62	137244 11.72*	477543 98.31	6628 1.34*	198169 9.40*	218614 16.79*	5391437 55391437 56301657 5631267	4154744
201	TOTAL	2	Ñ	12	7	N	ě	7	29	9	ģ	Ì	ē	ē	2	N	~	ĕ	120	186	13	47		<b>₹</b>	212	689	<b>4</b> 15
EHISCITUS SAUTERS	TONS PER YEAR	79347	16786	102199	60743	9950	96292	117241	544524	145533	394516	102012	50619	52381	82658	22810	16174	51628	107080	1569696	116532	521814	7105	166736	105901	4626636 4626636 3993042 4626636	3471228
	PLANT	25775	4035	20365	10415	13175	6566	26561	131622	36577	69739	12906	9953	8324	15358	4462	3192	8962	19405	295803	20713	-44271	-477	29433	32713	764800 764800 639243 809543	683514
#*# STRATEGY OPTINUM DITAL BHISCIONS	SAVINSS RATIO	106.0	0.8%	169.0	969.0	0.197	916.0	269.0	0.8%	9.8%	0.702	0.740	0.342	0.826	0.881	9.830	0.763	0.368	0.143	0.4.0	0.890	0.098	0.049	0.890	0.8.0		
*** STRA	C05T \$000	2675577	6 36 1 3 7	1942553	1696425	1172495	1217676	1668950	6179763	1824271	5289865	1315000	945307	901981	1534398	439337	366394	872475	2007117	20249376	2213299	9464124	192773	2795677	3656075	71336980 71336930 57155490 61660090	47674358
200	BOLLARS \$000	-41131	-34207	-34577	-17034	52532	131681	110566	538155	160900	550666	13730	96 90 5	38934	57977	-6163	1096	-36445	-20557	199140	1448	249648	-9218	40903	-34697	2166929 2160929 2396977 1920499	2147329
GASIFIER	RATIO	-0.106	-0.240	-0.131	-0.043	0.103	0.302	0 226	0.287	0.280	0.222	0.031	990.0	0.139	0.137	-0.113	0.092	-0.054	-0.005	0.027	700.0	0.023	-0.017	0.070	970.0-		
HP., COAL	FUEL	74.2	15.7	95.5	<b>9</b> . <b>9</b>	8.5	91.4	93.2	511.9	137.2	364.1	95.3	47.3	48.9	\$0.4	21.3	16.9	48.3	104.3	1466.5	108.9	4.87.4	9.9	157.7	173.6	4312 4312 3716 3316	3008
CESS LEVEL CELL, HIGH TEMP., COAL	FUEL SAVINGS	42.2	6.7	35.5	16.9	19.5	45.4	33.8	227.2	62.7	164.7	26.0	17.7	15.4	27.9	6.1	5.7	19.0	63.6	602.3	37.3	150.3	2.3	54.0	59.4	1751 1751 1445 1573	, s, e
IARY - FROCES	SAVINGS PATIO	0.322	0.166	0.240	0.175	0.174	0.378	0.267	0.260	0.265	952.0	0.149	0.102	202.0	0.229	0.225	0.193	0.033	0.050	9.114	0.230	0.033	0.015	0.230	907.0		
CTAS GEHEPAL SURHARY - FROCESS RD.31 ADVANCED TECHNOLOSY, FUEL CELLE FIRE FREDGY 1	INDUSTRY	NO.01 MEAT PACKING	NO.02 BAKING	HO.OS MALT BEYERAGE	NO.04 HUVEN FAERIC MILL	ND.05 SAW MILL	113.06 NEWSPRINT NILL	NO.07 WPITING PAPER MILL	NO.08 CORPUGATED PAPER	NO.09 EOX BOARD	ND. 10 CHLOPINE	NO.11 ALUPINA	HO.12 LOW DEHS. POLYETH:	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLGRIDE	NO.15 STIRENE-EUT. RUB.	HO.16 NYLON	NO. 1" STRRENE	HD.18 ETHYLENE	NC.19 PETROLEUM REFIHING	HJ.20 TIRES	NO.23 INTEGRATED STEEL	NO.24 GPAY IRON FOUNDRY	NO.25 COPPER	NO.26 MOTOR VEHICLE	ALL S CASES ONLY SS CACES CHLY SAVINGS CASE OF	FUEL, COST & EMISSION SAVING

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURTHARY

CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10012 BTU 104-12 BTU	UTILITY FUEL SAVINGS 10**12 BT	C05T	SAVINGS DOLLARS \$000	CAPITAL COST \$000		EN PLANT	ENISSIGNES SAVINGS TONS PER YEAR - PLANT UTILITY T	SAVINGS FEAR IT TOTAL	
T07AL ALL	0965	14304	;	9332938	229607152	; 25	2665016		574 16190592	
FUEL SAVINGS CASES ONLY	965	14304		9332938	229067152	25	2665016	6 15505574	574 18150592	
COST SAVINGS CASES ONLY	6905	12452		1950866	163351664	<b>5</b> 4	2310977	_		_
ENISSIONS SAVINGS CASE ONLY	5608	13358		0672079	211138416	16	2770791	_		_
FUEL, COST SAVINGS CASES FUEL, COST & ENISSION SAVING	5059 478 i	12452		9980561	186851664	4 tr	2310977	7 13556091 & 12555873	191 15867071 173 14951711	
		NAT	NATIONAL FUEL SAVINGS SUPIARY	SAVINGS S	UPPIARY					
CATEGORY	NATURAL PETR	OLEUM	PETROLEUM PETROLEUM DISTILLATE BOILER FUEL	6AS CO	10##12 BTU - COAL DERIVED DISTILLATE	BOILER FUEL	COAL	T OTHER SAVINGS	TOTAL FUEL	
				*	!				) 0 0 1	
SITE PLUS UTILITY										
TOTAL ALL	14654	-425	6082	•	•	-14214	-2334	2197	286	
FUEL SAVINGS CASES ONLY	14654	-425	6082	•	•	-14214	-2334	2197	2%0	
COST SAVINGS CASES ONLY	7373	00%-	3979	•	•	-5710	-2164	2022	2069	
EMISSIONS SAVINGS CASE ONLY	13117	-425	5504	•	0	-14066	69	1468	2999	
FUEL & COST SAVINGS CASES	7373	-408	3979	0	0	-5710	-2188	2022	5069	
FUEL, COST & EMISSION SAVING	2008	905-	3406	•	•	-5710	215	1370	4701	
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	23:1	-409	1260	0	0	•	1656	2197	7210	
FUEL SAVINGS CASES CHLY	2311	-408	1260	•	•	0	1858	2197	7218	
COST SAVINGS CASES ONLY	2232	-403	1222	•	0	•	938	202	4007	
EMISSICHS SAVINGS CASE ONLY	6.5	-408	989	0	•	0	4365	1466	4956	
FUEL & COST SAVINGS CASES	2232	-403	1222	•	•	•	938	2022	4007	
FUEL, COST & EMISSION SAVING	766	-408	879	0	0	•	3341	1370	5718	

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01 6S ECS SIZE TOTAL (MH)	95553 11.77	72499 1.21	93687 10.06	137783 5.76	58617 0.20*	54974 27.08	291067 28.96	485588 29.92	199149 29.67	320094 25.49	160843 28.67	130455 27.89	114756 23.08	209047 22.00	21241 14.03	40099 13.71	24822 20.93	50140 15.17	495414 28.20	270597 27.00	277357 27.62	35859 17.68	390840 28.85	430383 25.74	5465655 5465655 375067 375067
SIOHS SAVIN PER YEAR JIILITY	139991	147851	189640	264677	98163	26296	551299	884603	366691	540818	320198	250780	220603	401863	40915	76931	20203	103659	2876922	519819	533253	79390	126152	390	10334219 5 10334219 5 637110 637110
LANT	-44438	-75351	-90953	-126894	-39547	-41318	-260232	-399015	-167542	-220725	-159355	-120325	-105848	-192816	-19674	-36832	-25685	-53519	-1381508	-249222	-255896	-43532	-361132	-397007	9 9 9 9
*** STRATEGY OPTIMUM PITAL EMISSIONS COST SAVINGS - \$000 RATIO P	0.539	0.470	0.439	0.485	0.520	0.473	685.0	0.443	695.0	0.484	0.431	0.485	0.485	0.485	0.417	0.484	0.160	0.057	0.270	0.485	0.057	0.264	0.485	0.485	i
A** STRAT CAPITAL E COST \$000	1681172	1703910	1431879	2347061	2.00435	750985	3477909	5772693	2360699	4131250	2058956	1590376	1420948	2599379	303401	508923	454011	1045126	20644648	4042492	6040325	623027	4841338	6963448	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
GRADE SAVINGS DOLLARS \$000	-92248	-304934	-266836	-336503	-71678	7369	-663173	-821580	-371801	98584	-443054	-143766	-841293	-476.71	-56438	-82009	-100591	-149183	-3888585	-744154	-84039	-45585	-972259	-1263435	-11513303 -11513303 -11513303 105953 105953
ED BOILER COST :	-0.2	-2.134	-1.013	-0.649	-0.140	0.017	-1.355	-0.438	-0.647	0.040	-1.001	-0.225	-0.859	-1.126	-0.731	-0.76	-0.148	-0.037	-0.264	-1.837	-0.003	-0.082	-1 654	-1.603	
COAL DERIVED UTILITY FUE! SAVINGS R	130.9	130.2	177.3	247.3	91.7	91.4	433.3	831.5	345.8	499.1	299.1	234.3	205.	375.8	38.1	71.7	47.2	100.9	2687.7	485.8	453.1	74.2	702.7	772.6	9586 9585 9584 541 50 50
S LEVEL ERSINE TOTAL FUEL AVINSS	70.9	34.0	52.5	72.2	37.5	33.9	132.7	282.6	113.5	202.3	79.9	4.89	60.1	109.7	11.4	21.0	15.2	94.6	672.4	141.8	133.3	16.6	205.2	225.6	77 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0.377	0.209	0.229	192.0	0.334	0.282	0.270	0.250	0.265	0.302	0.211	0.263	0.263	0.263	0.216	0.263	0.067	0.043	0.135	0.263	0.029	0.107	0.263	0.254	•
CTAS GENERAL SUMMENY - PROCE NO.32 ADVANCED TECHNOLOGY,STIRLIN FUEL ENREGY SAVINGS SAVINGS RAIIO	HO.01 MEAT PACKING	NO.02 BAKINS	NO.03 MALT BEVERAGE	NO.04 MOVEN FABRIC MILL	MO.05 SAW MILL	MO.06 NEWSPRINT MILL	10.07 WRITING PAPER MILL	NO.08 CORRUSATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	HO.11 ALUMINA	MO.12 LOW DEMS. POLYETHYL	RO.13 HI DEMS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STYRENE-DUT. RUB.	NO.16 NYLON	HO.17 STYRENE	NO.18 ETHYLENE	HO.19 PETROLEUM REFINING	NO.20 TIRES	HO.23 INTEGRATED STEEL	NO.24 CRAY IRON FOUNDRY	NO.25 COPPER	VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENTOSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & ENTSSION SAVING

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

NATIONAL SURM YEAR : 1990 HO.32 ADVANCED TECHNOLOSY,STIRLING ENGINE,COAL DERIVED BOILEN GRADE	ING ENGINE,	COAL DERIV	NATIONAL SUMMARY ED BOILEN GRADE	SUMMARY	* * *	*** STRATEGY OPTINUM	TINUM				07
CATEGORY	TOTAL FUEL SAVINGS 10**12 BTU	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	cost \$	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	9	S  TOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSION:S SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL & COST & EMISSION SAVING	10769 10769 958 958	34003 34003 2482 2482 0	1 11	-41048048 -41048048 331284 331284	269957120 269957120 20453264 20453264	2	-17705424 -17705424 -1110525 -1110525	24 37539568 24 37539568 25 2647517 0 0 0 25 2647517	1 00000	19834208 19834208 1536993 1536993	•
		NATI	NATIONAL FUEL SAVINGS SUMNARY	SAVINGS SU	JMITARY						
CATEGORY	HATURAL PETR GAS DIST	OLEUM ILLAT	FUEL SAVINGS PETROLEUM E BOILER FUEL	GAS D)	COAL DERIVED DISTILLATE	BOILER	COAL	OTHER SAVINGS	TOTAL FUEL	:	
SITE PLUS UTILITY TOTAL ALL	14654	-425	6082	0	0	- 4528	32789	2197	10769	•	
FUEL SAVINGS CASES ONLY	14654	-425	6082	•	•	-44528	32789	2197	10769	6.6	
ENISSIONS SAVINGS CASE ONLY	3	0	0		9 0	0	90/7	• •	j.	420	
FUEL, COST & EMISSION SAVING	280	00	223	00	• • •	-2330	2786	• • •	₹.	958	
INCLUDING COAL FUEL CONVERSION	c	•	c	c	•	c	7041-	1010	ř	G	
FUEL SAVINGS CASES ONLY	•	• •		• •	9 0	o	-1807	2197	'n	2 2	
COST SAVINGS CASES ONLY	0	0	•	0	. 0	. 0	175		۰ -	175	
EMISSIONS SAVINGS CASE ONLY	0 (	0	0	0 (	0	0	0	0		0	
FUEL & COST SAVINGS CASES FUEL.COST & ENISSION SAVING		• •	<b>o</b> o	<b>o</b> c	00	00	175	00	-	175	
		,	,	•	,	,	>	>		•	

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

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YEAR : 1990 NO.33 ADVARCED TECHNOLOGY,STIRLING ENGINE,COAL(AFB)	LING ENGINE,	COAL(AFB)			*** STRATEGY OPTIMUM	OPTINUM				0
CATEGORY	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 1 10**12 BTU		CCST SAVINGS DOLLARS \$000	CAPITAL COST \$000	PLANT	MISS TONS	IONS SAVIN PER YEAR UTILITY	65  TOTAL	
		1	;		\$ 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1		!	1	
TOTAL ALL	7642			-1181515	376817152	-24101872	_	42158624	91895081	
FUEL SAVINGS CASES UNLY COST SAVINGS CASES ONLY	2102	38048		19190880	3/681/152 108227248	2/91019- -6001355		10314310	4312957	
EMISSIONS SAVINGS CASE ONLY	0,5			-166987	4615876			16941	33261	
FUEL & COST & EMISSION SAVING	0 0	000		0	0	0 666 1909-		015+1501	0	
		NAT	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS S	UNHARY					
		i	FUEL SAVINGS	}		į				
CATEGORY	GAS D	PEINOLEUM DISTILLATE	BOILER FUEL	GAS D	CUAL DERIVED DISTILLATE BOILER FUEL	COAL	OTHER SAVINGS	FUEL		
						1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	!	
SITE PLUS UTILITY	,	u c	9	ć	•	77071	•		•	
FIEL SAVINGS CASES ONLY	14654	1400	6082 6082				2197		7642	
COST SAVINGS CASES ONLY	12628	0	4611	0		0 -17210	2074		2102	
EMISSIONS SAVINGS CASE ONLY	15	0	€0	•	•		13		40	
FUEL & COST SAVINGS CASES	12628	•	4611	0		0 -17210	2074	~	2102	
FUEL, COST & EMISSION SAVING	0	0	•	0		0	•		•	
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14654	-425	6082	0	0		2197		7642	
FUEL SAVINGS CASES ONLY	14654	-425	6082	0			2197		7642	
COST SAVINGS CASES ONLY	12628	0	4611	0	•	0 -17210	2074		2102	
EMISSIONS SAVINGS CASE ONLY	15	0	0	0			13		9	
FUEL & COST SAVINGS CASES	12628	0	4611	•	•	0 -17210	2074		2102	
FUEL, COST & EMISSION SAVING	•	0	0	0		•	0		0	

01 ECS SIZE (MM)	3.24	.00.0	1.92	*07.0	0.0]*	14.65	10.87	44.20	29.74	9.46	15.46	2.08	2.72	2.58	2.74	*66.0	20.86	15.23	85.35	4.01	22.20	4.08	3.19	5.87	
HGS  TOTAL	27446	4601	26093	13549	12490	14938	32643	156099	43114	102568	19550	13634	11731	21456	5834	4156	33346	59231	1658127	28481	109343	10541	40344	44573	2496084 2496084 606545 12490 12490
EHISSIONS SAVINGS TONS PER YEAR LANT UTLITY TO	38660	1629	36787	18823	9025	21550	47337	223541	62629	10801	35781	19272	17823	32295	8206	5750	50974	99357	2185520	39755	146543	21470	56839	e i	3357747 3357747 809581 9025 809581
LANT	-11214	1661-	-10694	-5274	3465	-6612	-14694	-65442	-19815	-5483	-16231	-5638	1609-	-10839	-2372	-1594	-17628	-40126	-527393	-11274	-37200	-10929	-16545	-20049	-661662 -661662 -203036 -203036 -203036
*** STRATEGY OPTIHUM PITAL EMISSIONS COST SAVINGS - \$000 RATIO P	0.310	0.206	0.362	0.132	0.111	0.129	0.277	0.364	0.320	0.155	0.220	0.077	0.160	0.199	0.319	0.148	0.215	0.067	0.341	0.292	0.022	0.078	0.283	0.278	1
*** STRA CAPITAL COST \$000	1026320	141913	601142	359306	979044	288673	652645	2797980	614893	1456113	460008	286181	257759	469619	128061	87375	726853	2037704	28554916	682121	4287658	334391	826598	1157180	49416800 49416800 14248460 14248460 14248460 14248460
DE SAVINGS DOLLARS \$000	-30040	-14001	-14172	482	36827	11963	54594	151161	36618	194137	-7973	8202	3512	7220	-2017	2766	-74315	-176222	-1021508	0÷001	100075	-19299	25924	-27681	6 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
BOILER GRADE COST SA D RATIO	-0.077	-0.098	-0.054	0.001	0.072	0.027	0.050	0.081	990.0	0.078	-0.018	0.013	0.013	0.017	-0.028	0.026	-0.110	-0.043	-0.069	0.025	0.009	-0.035	0.044	-0.037	ı
DERIVED B UIILITY FUEL SAVINGS	36.1	6.3	34.4	17.6	9.4	20.5	37.6	210.1	59.3	99.7	33.4	18.0	16.6	30.2	7.6	5.4	47.7	96.7	2041.8	37.2	136.9	20.1	53.2	60.3	3135 3135 751 8 751 751
SS LEVEL NICS,COAL TOTAL FUEL SAVINGS	22.2	3.8	20.8	10.9	13.8	11.7	21.3	125.9	33.5	97.3	12.3	10.9	8.8	16.3	4.8	3.3	26.8	69.7	1409.1	22.8	74.8	7.6	32.9	35.0	ింగా ఉమ్మన్న
ARY - PROCES OGT, THERMION FUEL ENERSY SAVINGS RATIO	0.211	960.0	0.240	0.101	6.123	0.093	0.191	0.247	0.216	0.145	0.110	0.063	0.116	0.142	0.217	0.115	0.113	0.056	0.241	0.203	0.017	0.049	0.205	0.168	
CTAS GENERAL SUMMINRY - PROCESS LEVEL NO.34 ADVANCED TECHNOLOGY, THERMICHICS, COAL FUEL ENERSY TOTAL FUEL SAVINGS FUEL RATIO SAVINGS	HO.01 HEAT PACKING	HO.02 BAKINS	HO.03 HALT BEVERAGE	NO.04 WOVEN FABRIC MILL	SAW NILL	HO.06 KEHSPRINT MILL	HO.07 WRITING PAPER MILL	HO.03 CORRUGATED PAPER	NO.09 BOX BOARD	HO.10 CHIORINE	HO.11 ALUHINA	MO.12 LOW DENS. POLYETHYL	HO.13 HE DENS. POLYETHYL	NO.14 POLIVINIL CHLORIDE	HO.15 STYREHE-BUT. RUB.	HO.16 NYLOH	NO.17 STYRENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	ho.20 TIRES	HO.23 INTEGPATED STEEL	HO.24 GRAY IRCH FOUNDRY	HO.CS COPPER	ha.co hatop vehicle	ALL AVINES CASES ONLY AVINES CASES ONLY CHS SAVINES CASE OF COSE SAVINES CASE OST 8 PHISSICH SAV

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TU 10**12 BTU  SAVINGS  SAVINGS  SAVINGS  1U 10**12 BTU  10 10**12 BTU  10 10**12 BTU  10 10**12 BTU  10 10**12 BTU  10 10**12 BTU  10 10**12 BTU  10 10**12 BTU  10 10 10 10 10 10 10 10 10 10 10 10 10 1	) ТЕСНКОСОБҮ,ТНЕЯН	AL.	IVED BO	ILER GRAD	<u>u</u>	1S ***	*** STRATEGY OPTIMUM		0		
Second Second			UTILITY FUEL SAVINGS 10**12 BTU	COST		CAPITAL COST \$000		PLAN	EMISSIONS TOMS PER	¥	OTAL
HATIONAL FUEL SAVINGS SUMMARY   FUEL SAVINGS SUMMARY	 14LY 1946	5491 5491 1858 26 1858 26	1	:		13527906 13527906 5131515 187664 187664	1 8 8 8 7 8 7 8 8 8 7 8 7 8 7 8 7 8 7 8 7	-25816 -25816 -9277 -9277 -9277	24 49 91 11 11 11 11 11 11 11 11 11 11 11 11	1	590622 590622 409444 23940 23940
14654 -425 6082 0 0 -24312 7295 2197 14654 -425 6082 0 0 -24312 7295 2197 3186 0 1807 0 0 -2138 1288 717 3186 0 1807 0 0 -5138 1288 717 15 0 8 0 0 -5138 1288 717 15 0 0 0 0 0 1579 2197 0 0 0 0 0 1579 2197 0 0 0 0 0 1079 717 0 0 0 0 0 1079 717		,	HATION FUE LEUM P	NAL FUEL L SAVINGS ETROLEUM BOILER FUEL	SAVINGS SL	U VED ATE	EOTLER FUEL	COAL	OTHER Savings	TOTAL FUEL	
	4LY 5 FING VERSION	14654 14654 3186 3186 3186 0 0	1 44 1 70 1 80 1 80 1 80	6082 6082 1807 1807 8 8 0			-24312 -24312 -51312 -51316 -5136 -29 -29 0	7295 7295 1288 19 1288 19 19 19 1079	2197 2197 717 717 717 13 13 7197 717	546 106 106 176 176 176	. <b>==</b> @3&3 3 3 2 3 4 3

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01 ECS SIZE (MJ)	7.29	.00.0	3.74	₩20.0	0.01*	60.93	23.79	76.76	75.46	45.66	66.13	8.03	10.01	9.44	10.75	3.41	20.02	15.20	84.12	15.90	67.23	12.26	12.61	63.03	
HGS  TOTAL	47730	2897	34230	758	13458	43365 (	15609	354052	97076	293817	64929	32013	29687	53034	14585	6779	56599	43678	2127551	73293	262850	34014	102865	120332	3943306 3943306 307245 13428 307245
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	86438	9084	70562	3293	3629	87502	101973	573617	157408	540818	148499	72473	64036	115406	31415	19135	50574	97482	2860217	153932	521814	64825	220078	248586	こことりこうちょう
LANT	-38708	-6187	-36632	-2536	6626	-44106	-41023	-219564	-60334	-247002	-83690	-40460	-34349	-62372	-16831	-12356	-23974	-53804	-732667	-80539	-258964	-30811	-117213	-128254	-2359683 -2359683 -237203 -237203 -237203
*** STRATEGY OPTIFIUM PITAL EHISSIONS COST SAVINGS - \$000 RATIO P	0.336	0.124	0.322	0.007	0.119	0.373	0.419	0.451	0.451	955.0	0.336	0.181	0.371	0.367	0.352	0.242	0.172	0.050	0.395	0.383	0.054	0.251	0.375	0.390	
*** STRAT CAPITAL E COST S	1937849	279334	1080767	136607	892613	763140	1032173	4819926	1341123	4887148	1265842	859612	703581	1303013	373169	273759	618002	1686975	29553249	1963951	6091290	745510	2416844	3202132	
FIG.) SAVINGS DOLLARS \$000	-152712	-41562	-128247	-13171	60360	-9518	-4509	-156298	-19641	42682	-202925	-51782	-42405	-115413	-55645	-26731	-93973	-207993	-780076	-225840	-248697	-19035	-289703	-383179	-3165710 -3165710 -3165710 103042 60360 60360
.(CONP.CONFIG.) COST SAVIN DOLL RATIO \$00	-0.392	162.0-	-0.437	-0.033	0.118	-0.022	-0.009	-0.033	-0.034	0.017	-0.459	-0.081	-0.151	-0.273	-0.770	-0.251	-0.139	-0.051	-0.053	-0.553	-0.023	-0.034	-0.493	-0.506	1
DER. B.G. UTILITY FUEL SAVINGS	80.0	8.5	66.2	3.1	3.4	83.1	81.1	539.2	148.4	499.1	133.7	67.7	59.8	107.9	29.3	17.8	47.3	6.46	2672.1	143.8	487.4	9.09	205.7	232.1	
ESS LEVEL OHICS, COAL B of TOTAL SAVINGS	28.7	0.1	16.7	0.5	17.5	21.6	33.7	240.3	66.0	166.4	28.2	12.4	12.9	22.6	6.5	0.9	17.7	43.2	1755.2	33.4	116.4	20.6	40.0	57.1	2771 2771 2771 104 18 164
MAY - PROCES OGY,THERNION FUEL ENERGY SAVINGS RATIO S	0.209	0.004	0.141	0.002	0.156	0.180	0.253	0.236	0.286	0.249	0.130	0.071	0.156	0.152	0.148	0.032	0.078	0.038	0.271	0.170	0.00%	0.133	0.16	0.164	
CFAS GENERAL SUMMAY - PROC NO.35 ADVANCED TECHNOLOGY,THERNI FUEL ENEXG INDUSTRY SAVINGS RATIO	HO.01 HEAT PACKING	NO.02 BAKING	HO. 03 HALT BEVERAGE	HO.04 HOVEN FADRIC MILL	HO.05 SAW MILL	HO.C6 HEWSPRINT HILL	NS.07 WRITINS PAPER HILL	NO.03 CORRUCATED PAPER	NO.09 BOX EOARD	NO.10 CHLORINE	HO.11 ALUMINA	NO.12 LOW DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	HO.14 POLYVINYL CHLORIDE	NO.15 STYFENE-BUT. RUB.	HJ.16 NYLON	HO.17 STIRENE	HO.13 ETHYLENE	HO.19 PETROLEUM REFINING	NO.20 TIPES	NO.23 INTEGRATED STEEL	HO.24 GRAY IRON FOUNDRY	HO.25 COPPER	OTCR VE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY FUEL SECONS SAVINGS CASE ONLY FUEL COST SAVINGS CASES FUEL, COST & ENISSICH SAVING

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUBBARY

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OPTIMUM 07	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TOTAL	-7847005 19120272 11273262 -7847005 19120272 11273262 -536916 1223677 686761 18782 6956 25739 -536916 1223677 685761 18782 6956 25739		COAL OTHER FUEL SAVINGS	16491 2197	16491 2197 7460	er corr	1363 13	452 2197	452 2197 26	-20 13	25 13		T- 11 06-
*** STRATEGY OPTIMUN	CAPITAL COST \$000	206147584 206147584 12705963 1710969 12705963	JRIHARY	u		0 -31539		0 -1143		•				
COMP.COMFIG.)	COST SAVINGS DOLLARS \$000	-10545944 -10545944 -115699 115699 211724 115699	NATIONAL FUEL SAVINGS SUMMARY	55 10 1 CD 6AS	0	6082 0		55 0		0				
IIONICS,COAL DER. B.G. (1	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	7460 17706 7460 17706 408 1129 34 7 408 1129	NATIO	NATURAL PETROLEUM GAS DISTILLAT	-425	11654 -425				0		0		
YEAR: 1990 NO.35 ADVAHCED TECHNOLOGY, THERNICHICS, COAL DER. B.G. (COMP.CONFIG.)	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST SAVINGS CASES		CATEGORY	SITE PLUS UTILITY TOTAL ALL	FUEL SAVINGS CASES ONLY	EMISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING	INCLUDING COAL FUEL CONVERSION TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	EMISSIONS SAVINGS CASE O'LLY	CHURCH CONTACT OF THE CONTROL	

## TABLE VI-6 MATCH HEAT PUMP STRATEGY

01 ECS SIZE (PIL)	0.00	0.00	0.00	2.75	0.00	77.11	20.51	<b>9</b> . 0	0.00	53.79	45.28	22.89	15.80	11.51	3.97	6.11	9.00	0.00	77.57	14.76	0.0	16.35	16.39	19.83	
765  TOTAL	84839	22621	51939	-6673	111149	23870	28894	407564	128618	100022	-24234	19288	-6777	-20667	0/65-	-2783	101012	717096	-457092	-18383	4864582	13430	-21654	-17130	6489419 6489419
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	63274	19196	96292	74301	218524	76864	240919	34273	159056	57565	78782	6463	22168	7532	16628	313958	59693	521814	79390	88446	100465	2820344 74301 1027904
PUMP ENTS	33502	5835	31683	8%68-	12986	-72422	-45407	189040	51753	962055-	-58508	-139768	-64343	65566-	-9433	-24951	93480	495004	-771050	-78076	4342769	-65%1	-110100	-117595	3273707 -45407 -45407 5461515
STRATEGY HEAT AL EHISSIONS F SAVINGS D RATIO	0.000	0.000	0.000	-0.066	0.000	0.209	0.255	0.000	0.000	0.154	-0.286	0.110	-0.094	-0.197	-0.362	-0.102	0.000	0.000	-0.169	-0.196	0.000	0.103	-0.158	-0.111	i
CAPITAL ECOST \$	•	•	0	1586637	•	458104	536795	•	•	2997008	511423	1115226	610415	949156	136445	287470	•	•	6994154	1077699	•	519329	1308698	397	533795 533795 0
.G. SAVINGS DOLLARS \$000	•	•	•	-390986	•	-130429	-51655	•	•	-978453	-262358	-371117	-231912	-392402	-50985	-95518	•	•	-3931099	-346269	•	-160269	-452826	-517352	-8363623 -51655 0 0
st . 8.	0.000	0.000	0.000	-0.986	0.000	-0.299	-0.106	0.000	0.000	-0.394	-0.593	-0.501	-0.826	-0.928	-0.705	-0.896	000.0	0.000	-0.267	-0.855	0.000	-0.287	-0.770	-0.633	ı
PSIACEXTI,PET UTILITY CO FUCL SAVINGS RATI	48.0	15.7	18.9	77.8	7.16	91.4	59.1	205.4	72.5	499.1	32.0	143.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	2623 59 0 963 0
<u> </u>	0.0	0.0	0.0	+.09-	0.0	-21.5	0.5	0.0	0.0	-167.5	-56.8	-66.3	-44.8	-78.7	6.6-	-17.6	0.0	0.0	-793.7	-63.5	0.0	-24.9	-84.6	-65.1	0001
COST, STEAM TO FUEL ENERGY SAVPISS RATIO	000.0	0.000	000.0	-0.560	0.000	-0.180	0.00%	0.000	0.000	-0.250	-0.512	-0.330	-0.536	-0.634	-0.523	-0.609	0.000	0.000	-0.195	165.0-	0.00.0	-0.161	-0.528	-0.408	
NO. I CUPRENT TECHNOLOGY,STEAN TUPBING SOL FUEL ENERGY TOTAL SAVINGS FUEL RATIO SAVINGS	RO.01 HEAT PACKING	NO.02 BANING	HO.03 MALT BEVERAGE	NO.04 HOVEN FABRIC MILL	NO.05 SAW MILL	NO.05 NEWSPRINT MILL	NO.07 WILLING PAPER MILL	HO.OG COPRUGATED PAPER	HO.09 EOX BOARD	NO.10 CHLORINE	HO.11 ALUMINA	1.0.12 LOW DENS. POLYETHYL	HO.13 HI DEHS. POLYETHYL	HO.14 FOLYVINYL CHLORIDE	NO.15 STYRENE-BUT. PUB.	NO.16 NYLON	NO.17 STYRENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	NO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	NO.25 COPPER	VEHICLE	TOTAL ALL FUEL SAVINES CASES ONLY COST SAVINES CASES GILY FUEL & COST SAVINES CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SUBMARY

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CATEGORY	TOTAL C FUEL SAVINGS S 10**12 GTU	UTILITY FUEL SAVINGS 10**12 BTU	cost s	AVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	ENISSIONS SAVINGS TONS PER YEAR IT UTILITY T	SAVING YEAR TY	S TOTAL
TOTAL ALL FUEL SAVINGS CASES ONLY	2655-	9106	1 7	-24375200	67303776	i	7587153	53 9794866	•	17362000
COST SAVINGS CASES ONLY	•	0		0	0				•	
ENISSIONS SAVINGS CASE ONLY	•	2548		0	•		14963496	36 2714211		17677696
FUEL, & COST SAVINGS CASES FUEL, COST & EMISSION SAVING	90	<b>.</b> 0		• •	• •			• •	• •	00
CATEGO?Y	RATURAL FETROLEUM PETROLEUM BATURAL GAS DISTILLATE BOILER FUEL	FETROLEUM I DISTILLATE	FUEL SAVINGS PETROLEUF F BOILER FUEL	10 CO GAS	COAL DERIVED COAL DERIVED DISTILLATE BOILER FUEL		COAL	OTHER SAVINGS	TOTAL FUEL	
	;	; ; ; ; ;					i !			<b>!</b>
SITE PLUS UTILITY	14808	575-	-15322	0	•		15579	2197	-4493	93
FUEL SAVINGS CASES ONLY	219	0	-1305	•	•		1093	0		
COST SAVINGS CASES ONLY	0	0	•	0	•	0	•	•		•
ENTSSIONS SAVINGS CASE ONLY	691.6	0	3142	•	•	•	8002	722		
FUEL & COST SAVINGS CASES	0	0	0	0	•	0	•	0		•
FUEL, COST & EMISSION SAVING	0	•	0	0	•	•	•	•		•
INCLUDING COAL FUEL CONVERSION	6084	£.9-	-15122	G	e	•	15579	2197	1099-	ő
A THE CANTAGE CASES ONLY	0 0	} `	100	•			1001		•	•
FUEL SAVINGS LASES OFFE	613	<b>&gt;</b> (	cnct-	> <	> <	<b>.</b>	767	<b>-</b>		٠,
ST SAVINGS CASES CHLY	•	0	0	<b>o</b>	0	0	0	0		•
ENISSIONS SAVINGS CASE ONLY	4046	0	3142	0	0	0	8005	722		0
FUEL & COST SAVINGS CASES	0	0	0	•	•	0	0	•		0
THE POST PRINCESS CANDED	•									

- COSENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURBARY

VINGS A? TOTAL	-	4 -3333193	1843588	•	D		FUEL		-5858	•	-2203	•	•	•		-5858	•	-2203	•	•	• •
ENISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	49794664	7 1858614			•		TOT OTHER I		2197	0	1367	722	0	•		2197	•	1387	722	•	0
PLANT	603306	-5191207	15721664			;	COAL FUEL		-7190	•	-9604	8002	•	•		-7190	٥	-9804	6002	•	•
CAPITAL COST \$000	149412240	52089564	•	•	9	11 BTU	COAL DERIVEO DISTILLATE BOILER FUEL		0		•	•	•	•		•	0	•	0		
COST SAVINGS DOLLARS \$000	Z£0666£-	4236459	0	0 (	•	NATIONAL FUEL SAVINGS SUMMARY FUEL SAVINSS 10**12 BTU	PETROLEUM COAL COILER GAS DIS FUEL		6082 0	•	2141 0	3142 0		•		6082 0	0	2141 0	3142 0	0	
 TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	9018	1532	2548	o (	0	NATION FUEL	PETROLEUN FE DISTILLATE GO		-455	0	0	c	0	0		-425	0	0	0	•	
TOTAL FUEL SAZINGS 10**12 BIU		-2003	•	<b>0</b> (	3	1	HATURAL PE GAS DI	: 	14608	0	4673	4910	•	•		14.03	0	4073	4040	•	9
CATEGORY	FOTAL ALL FIRE SAVINGS CASES ONLY	COST SAVINGS CASES CALY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSICA SAVING		CATEGORY	SITE PLUS UTILITY	TOTAL ALL	FUEL SAVINGS CASES ONLY	CUST SAVINGS CASES OFFLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING	HOLUDING COAL FUEL CONVERSION	101AL ALL	FUEL SAVINGS CASES CHLY	COST SAVINGS CASES GALL	EMISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSICH SAVING

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. 5 =	LINISH SPEED SY TOTAL	, PETROLEUS UTILITY	1 DIST. COST	SAVINGS	CAPITAL	PITAL EMISSIONS	PLMP EMI		1165	ECS
SAVINGS FUEL RATIO SAVINGS		FUEL SAVINGS	PAT10	5000 \$000	0005 \$000	SAVINGS	PLAIT	S PER YEAR UTILITY	TOTAL	S12E (184)
0.000	0.0	48.0	0.000	•	٥	0.000	33502	51337	64639	0.00
0.174 7	0	15.7	-0.229	-32750	208070	-0.617	-35260	16766	-16475	0.20*
0.00 0.0	0	18.9	0.000	0	0	0.000	31663	20256	51939	0.00
0.215 23.	ę,	77.8	-0.223	-85450	615030	-0.724	-156060	63274	-72765	1.31
0.000	•	91.7	0.000	٥	•	0.000	12966	98163	111149	0.00
0.000 0.0	_	91.4	0.000	۰	•	0.000	17873	36295	114165	0.00
0.00 0.0	_	59.1	0.000	•	•	0.000	39091	74301	113392	0.0
0.00 000.0		505.4	0.000	•	•	0.000	189040	210524	407564	0.00
0.00 0.0		72.5	0.000	٥	•	0.000	51753	76864	126616	0.00
0.00 0.0		4.66.1	0.000	٥	٠	0.000	105046	540819	643365	0.00
0.00 000.0		32.0	0.00	•	•	0.00	50357	34273	84630	9.00
0.00 000.0		140.6	0.000	•	0	0.00	16289	159056	175345	0.00
0.00 0.0		53.7	0.000	•	•	0.00.0	14309	57565	71874	0.0
0.193 22.8		73.7	-0.181	-76377	527550	-0.692	-151392	78782	-72610	1.57
0.00 000.0		4.2	0.000	0	6	0.000	9526	4463	13722	0.00
<b>9.220 6.4</b>		20.7	-0.192	-20455	136705	-0.744	-42549	22168	-20391	1.37
0.00 000		7.0	0.000	0	•	0.000	93460	7532	101012	0.00
0.00 000.0		16.2	0.000	•	•	0.000	700469	16628	7170%	٠. ٥٠
0.000 0.0		293.3	0.000	•	•	000.0	2396786	313959	2710745	9.
0.173 18.5		55.8	-0.173	-72261	586696	-0.641	-119676	59693	-59984	1.57
0.00 000.0		4.734	0.000	٥	۰	0.000	4342768	521814	4864582	9.00
0.00 000.0		74.2	0.000	•	•	0.000	50453	79390	12964	0.00
9.171 27.4		82.6	-0.163	-96107	710219	-0.651	-177557	99446	-89110	1.54
0.00 000.0		93.6	0.000	0	•	0.000	53626	100465	160551	0.00
501 501 501		12.6 3.6 5.9 5.9 7.6 5.9		-336430 -336430 0	2768271 2768271 0		7529274 -682494 6211769	2620345 349149 3471899	10350121 -333345 0 10653469	
		9 9			•		9 6			

- COSENCRATION TECHNOLOGY ALTERNATIVES STUDY - HATIGNAL SUBSERY

Utility   COST SAVINGS   CAPITAL   FUEL   FUEL   FUEL   FUEL   DOLLARS   COST   FORM   FUEL   FUEL   FUEL   FUEL   FUEL   FUEL   FUEL   FUEL   FUEL   FUEL   FUEL   SAVINGS   FUEL   FUEL   SAVINGS   FUEL   SAVINGS   FUEL   FUEL   SAVINGS   FUEL	COST SAVINGS  COST PAINTS CAPITAL  FOLLARS  COST TOHS PER TEAM  FOLLARY  COST TOHS PER TEAM  FOLLARY  COST TOHS PER TEAM  FOLLARY  COST TOHS PER TEAM  FOLLARY  COST TOHS PER TEAM  FOLLARY  COST	UTILITY   COST SAVINGS   COST   COS	HALIA 1218 : 1990 140. J CUFFERT TECHNOLOGY,DIESEL,HIGH SPEED,PETROLEUM DIST.
S	6 9010	Color	
0 6124 0 0 0 21555136 6636324 0 0 0 0 0 0 0 2655136 6636324 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O	O	
O	HATIOHAL FUEL SAVINGS SUFFIARY   HATIOHAL FUEL SAVINGS SUFFIARY	HATIONAL FUEL SAVINGS SUPPLARY  FETPOLEUT PLEPOLEUT COAL DEPILER COAL OTHER FUEL  DISTILLATE FOLLER GAS DISTILLATE BOILER COAL OTHER FUEL  FUEL SAVINGS 10**12 BTU COAL DEPILER COAL OTHER FUEL  DISTILLATE FOLLER GAS DISTILLATE BOILER COAL OTHER FUEL  FUEL SAVINGS 10**12 BTU COAL OTHER FUEL  DISTILLATE FOLLER GAS DISTILLATE BOILER COAL OTHER FUEL  FUEL SAVINGS 10**12 BTU TOAL OTHER FUEL SAVINGS TOAL OTHER FUEL SAVINGS TOAL OTHER FUEL SAVINGS TOAL OTHER FUEL SAVINGS TOAL OTHER FUEL	
HATIONAL FUEL SAVINGS SURTIARY  FETPOLEURI PETROLEURI COAL DEPINED DISTILLATE FOILER GAS DISTILLATE BOILER COAL OTHER FUE  FUEL FUEL SAVINGS 639 5766 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	HATIOHAL FUEL SAVINGS SURFIARY  FUEL SAVINGS SURFIARY  FETPOLEURI PETROLEURI COAL DEPINED  DISTILLATE FOILER GAS DISTILLATE BOILER COAL OTHER FUE  FUEL SAVINGS FUE  FUEL SAVINGS 10**12 BTU  COAL OTHER FUE  FUEL SAVINGS FUEL FUEL FUEL FUEL FUEL FUEL FUEL FUEL	HATIONAL FUEL SAVINGS SURTIARY  FETPOLEUM PETROLEUM COAL CEPTVED DISTILLATE FOILER GAS DISTILLATE BOILER COAL OTHER FUEL  FUEL FUEL FUEL FUEL FUEL FUEL FUEL	
FETPOLEURI PETROLEURI COAL DEPINED DISTILLATE FOILER GAS DISTILLATE BOILER COAL OTHER FUE FUEL SAVINGS639 5788 0 0 0 0 0 15579 2197639153 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FETPOLEUM PLIROLEUM COAL CONTENT FUEL SAVINGS COAL CEPIVED COAL CEPIVED COAL CEPIVED FUEL SAVINGS FUEL FUEL SAVINGS FUEL FUEL SAVINGS FUEL SAVING	FETPOLEUM PETROLEUM COAL DEPINED TOTAL DISTILLATE BOILEM COAL OTHER FUEL SAVINGS FUE FUEL SAVINGS FUEL FUEL SAVINGS FUEL SAVING	
DISTILLATE FOILER GAS DISTILLATE BOTLER COAL OTHER FUEL SAVINGS  -639 5788 0 0 0 0 0 983 41  -639 -639 -163 0 0 0 0 0 983 41  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DISTILLATE FOILER GAS DISTILLATE BOTILEY COAL OTHER FUEL SAVINGS  -639	-639 5786 0 0 0 0 15579 2197 -639 5786 0 0 0 0 15579 2197 -639 5786 0 0 0 0 0 15579 2197 -639 5786 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 3
-639 5786 0 0 0 15579 2197 -639 -163 0 0 0 903 41 0 0 0 0 0 0 0 0 5971 0 0 0 0 14595 2156 0 0 0 0 0 0 0	-639 5788 0 0 0 15579 2197 -639 -153 0 0 0 0 983 41 0 5971 0 0 0 0 0 14595 2156 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-639 5766 0 0 0 15579 2197 -639 -153 0 0 0 0 933 41 0 5971 0 0 0 0 14595 2156 0	Z :
-637 5786 0 0 0 15579 2197 -637 -163 0 0 0 963 41 0 0 0 0 0 0 0 0 0 5971 0 0 0 0 14595 2156 0 0 0 0 0 0 0	-637 5788 0 0 0 15579 2197 -639 -153 0 0 0 0 983 41 0 5971 0 0 0 0 14595 2156 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-639 5786 0 0 0 15579 2197 -639 -153 0 0 0 0 983 41 0 5971 0 0 0 0 14595 2156 0 0 0 0 0 0 0 0 0 -639 5785 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -639 5785 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
-634 -163 0 0 0 963 41 0 0 0 0 0 0 0 0 0 5971 0 0 0 14595 2156	-639 -163 0 0 0 963 41 0 5971 0 0 0 0 14595 2156 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-634 -163 0 0 0 983 41 0 0 0 983 41 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
5971 0 0 0 14595 2156 0 0 0 0 0 0	0 5971 0 0 0 14595 2156 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-E33 - S784	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-634 5784 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 -5-0-3 -5-0-3	-634 5784 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	-603 5783 6 0 0 15579 2197	-E33 5763 E 0 0 15579 2197 -E3 0 0 0 0 933 41 0 5971 0 0 0 0 0 0	
		-653 -163 0 0 0 933 41 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
-604 5789 6 0 0 15579 2197 -607 -183 0 0 0 933 41		\$65\$** O O O 1265 O	
-634 5785 6 0 0 15579 2197 -653 -183 0 0 0 933 41 0 0 0 0 0 0	9 9 9 9	0 (	
-634 5763 6 0 0 15579 2197 -653 -163 0 0 0 933 41 0 0 0 0 0 0 0 0 5971 0 0 0 14595 2156	0 0 0 0 0 0 1/65 0		

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0.0         0.000         0	CTAS GENERAL SUNIDARY - POD HO. 4 CUPRENT TECHNOLOGY, DITERED FUEL ENER THDUSTRY  RATIO	MRY - DEOCE GGY,DIWEL, FUEL ENERGY SAVINGS RATIO :	CESS LEVEL L, LOW SPEED, PETROLEUN GY TOTAL VILLITY FUEL FUEL SAVINGS SAVINGS	PETROLEUM UTILITY FUEL SAVINSS	BOILER COST RATIO	GRADE SAVINGS DOLLARS \$000	*** STR/ CAPITAL COST \$000	STRATEGY HEAT AL EMISSIONS SAVINGS PATTO	PUMP	EMISSICHS SAVINGS TOHS PER YEAR	TAGS	O1 ECS SIZE
0.102   0.00   0.0   18.7   0.286   0.4129   514850   0.644   0.3864   15726   15726   19921   0.000   0.0   18.9   0.000   0.000   0.0   18.9   0.000   0.0		0.000	0.0	84	0000				6	•	10 10 10 10 10 10 10 10 10 10 10 10 10 1	
0.000   0.0   11.0   77.0   -0.301   0.000   0.000   31663   21256   1.939   0.0000   0.000   0.0000   0	ND.02 BAKING	0.172		15	-0.288	-41129	514850		-35867	16785	-19081	0.21*
0.000         0.000         0.000         0.000         12966         91.7         0.0102         0.000         12966         91.5         -11114         0.000         12966         91.5         -11114         0.000         12966         91.5         -11114         0.000         12966         91.5         -11114         0.000         12966         91.5         -11114         0.000         12966         91.5         -11114         0.000         12966         91.5         -11114         0.000         12966         91.5         -11114         0.000         12967         11114         0.000         91.50 <th< td=""><td>HC.03 HALT BEVERAGE</td><td>0.000</td><td>0.0</td><td>18.</td><td>0.000</td><td>•</td><td>0</td><td>0.000</td><td>31683</td><td>20256</td><td>01939</td><td>•</td></th<>	HC.03 HALT BEVERAGE	0.000	0.0	18.	0.000	•	0	0.000	31683	20256	01939	•
0.000         0.000 <t< td=""><td>MO.04 WOVEN FADRIC MILL</td><td>0.102</td><td>11.0</td><td>77.8</td><td>٩</td><td>-143284</td><td>1717743</td><td>-1:1</td><td>9666</td><td>83275</td><td>-116714</td><td>2.59*</td></t<>	MO.04 WOVEN FADRIC MILL	0.102	11.0	77.8	٩	-143284	1717743	-1:1	9666	83275	-116714	2.59*
0.000   0.0   0.01   0.0144   0.0144   0.0106   0.010   0.0106   0.0101   0.0101   0.01101   0.0101	NO.05 SAW MILL	0.000	0.0	91.7	•	0	0	0.000	12986	98163	111149	0.00
0.000   0.00   59.1   0.000   0.000   0.000   1953-0   215524   4075-4   4075-4   4050-4	MO.06 NEWSPRINT MILL	0.253	30.3	91.4	920.0	11442	871105	-0.713	2024	36296	-81410	24.37
0.000   0.0   205.4   0.000   0.0   0.000   169340   216654   407544   4076	NO.07 KRITING PAPER HILL	0.000	0.0	59.1	000.0	0	0	0.000	16065	74301	113392	0.00
0.000   0.	NO.08 CGRRUGATED PAPER	0.000	0.0	205.4	0.000	0	0	0.000	185240	218524	407564	0.00
0.000   0.	NO.09 BOX BOARD	0.000	0.0	72.5	0.000	0	0	000.0	51753	76864	126618	0.00
0.010   0.011   0.103   0.1070   0.1475   0.0476   0.0449   0.72251   34273   34273   137971   1870   0.108   0.109   0.108   0.10425	NO.10 CHLORINE	0.000	0.0	499.1	0.000	0	0	0.000	10804		948665	0.00
0.109   19.1   148.6   -0.107   -119425   1671012   -1.047   -1452656   159064   -183570   14750   14750   14750   141950   15765   -104395   14750   14750   141950   14750   141950   14750   141950   14750   141950   14750   141950   14750   141950   14750   141950   14750   141950   14750   141950   14750   141950   14750   141950   14750   141950   14750   141950   14750   1	HO.11 ALUHINA	0.021	2.3		-0.079	-34757	404766	-0.449	-72251	34273	-37977	18.44
0.003   0.0   0.	NO.12 LOW DENS. POLYETHYL	0.109		148.6	-0.187	-119425		_	-342626	159056	-183570	21.54
0.000   0.00   0.0   0.00   0.0000   0.000   0.000   0.000   0.0000   0.000   0.000   0.000   0.000   0.000   0.000   0.000	NO.13 HI DENS. POLYETHYL	0.003	•	53.7	-0.339	-95085	831343	-1.452	-161950	57565	-104385	•
0.000   0.00   0.0   0.00   0.000	NO.14 POLYVINYL CHLORIDE	-0.037	-4.2	73.7	-0.396	-167424	1418974	-1.627	-249372	78782	-170590	~
0.000         0.000 <t< td=""><td>STYRENE-BUT</td><td>0.000</td><td>0.0</td><td>4.2</td><td>0.000</td><td>0</td><td>0</td><td>0.000</td><td>9258</td><td>4463</td><td>13722</td><td>0.00</td></t<>	STYRENE-BUT	0.000	0.0	4.2	0.000	0	0	0.000	9258	4463	13722	0.00
0.000         0.000 <th< td=""><td>ND.16 HYLON</td><td>0.057</td><td>1.6</td><td></td><td>-0.300</td><td>-32020</td><td>353471</td><td>-1.285</td><td>-57393</td><td>22168</td><td>-35225</td><td>5.75*</td></th<>	ND.16 HYLON	0.057	1.6		-0.300	-32020	353471	-1.285	-57393	22168	-35225	5.75*
0.0000         0.00         16.2         0.0000         0.0000         16.2         710046         16.2         710046	NO.17 STYRENE	0.000	0.0	7.0	0.000	0	0	0.000	93480	7532	10101	0.00
0.000         0.000         293.3         0.000         0         0.000         2396.78         313959         2710745           0.148         16.2         55.8         0.004         -29931         838362         -0.520         -108327         59693         -48636           0.000         0.00         487.4         0.000         0         0.000         4342768         521814         4864562           0.000         0.0         74.2         0.000         0         0.000         4342768         521814         4864562           0.000         0.0         62.0         0.000         0         0.000         48516         129644         136956           0.000         0.0         0.0         0.000         536.2         100465         136956           0.000         0.0         0.0         0.000         536.2         100465         136956           0.000         0.0         0.0         0.000         536.2         100465         136956           0.000         0.0         0.0         0.000         536.2         100465         136956           0.000         0.0         0.0         0.000         536.2         104665         1046100	NO.18 ETHYLENE	0.00.0	0.0		0.000	0	0	0.000	700469	16628	717096	0.00
0.148         16.2         55.8         0.074         -29931         636362         -0.520         -106327         59693         -486134           0.000         0.000         467.4         0.000         0.000         4342768         521814         4864582           0.000         0.00         74.2         0.000         0.000         50453         79390         129644           0.000         0.00         82.6         0.000         0.000         48510         86446         136956           0.000         0.00         93.8         0.000         0.000         48510         86446         136956           0.000         0.000         93.8         0.000         0.000         48510         86468         136956           0.000         0.000         93.8         0.000         0.000         53626         100465         136956           0.000         0.000         0.000         0.000         525248         9529045         952904           0.000         0.000         0.000         0.000         0.000         56292         -62699           0.000         0.000         0.000         0.000         0.000         96292         -626996           0	HO.19 PETROLEUM REFININS	0.000	0.0	93.	0.000	•	0	0.000	2396786	1395	2710745	0.00
0.000         0.00         487.4         0.000         0         0.000         4342768         521814         4864582           0.000         0.000         0.000         50453         79390         129644           0.000         0.000         0.000         62.6         0.000         63465         136956           0.000         0.000         0.000         48510         83446         136956           0.000         0.000         0.000         53626         100465         136956           0.000         0.000         0.000         53626         100465         14091           0.000         0.000         0.000         53626         100465         14091           0.000         0.000         0.000         53626         100465         14091           0.000         0.000         0.000         53626         261046         556946           0.000         0.000         0.000         53626         261410         661410           0.000         0.000         0.000         53629         61410         66269         61410           0.000         0.000         0.000         0.000         53629         61410         66292         61410 <td>MO.20 TIRES</td> <td>0.148</td> <td>16.2</td> <td>S</td> <td>4.074</td> <td>-29931</td> <td>838362</td> <td>-0.520</td> <td>-108327</td> <td>59693</td> <td>-48639</td> <td>7.00*</td>	MO.20 TIRES	0.148	16.2	S	4.074	-29931	838362	-0.520	-108327	59693	-48639	7.00*
0.000         0.0         0.0         0.000         50453         79390         129644           0.000         0.000         0.000         62.6         0.000         0.000         48510         88446         136956           0.000         0.000         0.000         0.000         48510         88446         136956           0.000         0.000         0.000         53626         100465         100465           0.000         0.000         0.000         53626         100465         136956           0.000         0.000         0.000         53626         100465         136956           0.000         0.000         0.000         53626         100465         136956           0.000         0.000         53626         100465         136956           0.000         0.000         53626         100465         136956           0.000         0.000         53626         100465         136956           0.000         0.000         0.000         53626         136956           0.000         0.000         0.000         53629         -61410           0.000         0.000         0.000         53629         -61410	HO.23 INTEGRATED STEEL	0.000	0.0	487.4	0.000	0	0	0.000	4342768	521814	4864582	0.00
0.000 0.0 0.0 0.0 0.0 0 0.000 48510 88446 136956  0.000 0.000 93.8 0.000 0 0.000 53626 100465 126954  0.000 0.000 93.8 0.000 0 0.000 53626 100465 126954  0.000 0.000 53626 100465 126954  0.000 0.000 53626 100465 126954  0.000 0.000 53626 100465 126954  0.000 0.000 0.000 53626 100465 126954  0.000 0.000 0.000 53626 100465 126954  0.000 0.000 0.000 0.000 100465 100465 100465 100465  0.000 0.000 0.000 0.000 0.000 100465 1	NO.24 GRAY IRCH FOUNDRY	0000.0	0.0	74.2	0.000	0	0	0.000	50453	79390	129644	0.00
0.000 0.0 93.8 0.000 0 0 0.000 53626 100465 141991	NO.25 COPPER	0.000	0.0	82.6	0.000	0	0	0.000	48510	83446	136956	0.00
83 2623 -651614 8671622 6755976 2820645 99 671622 6755976 2820645 99 6761622 6755976 2820645 99 6761622 6755976 2820645 99 676162 6755976 2820645 99 6292 90 91 91442 871105 917702 96292 97116 0 0 0 0 0 0	NO.26 HOTOR VEHICLE	0.000	0.0	93.8	0.000	0	0	0.00.0	53626	100465	1600	0.00
	TOTAL ALL FUEL SAVINSS CASES ONLY COST SAVINSS CASES ONLY ENISSIONS SAVINSS CASE ONLY FUEL & COST SAVINSS CASES FUEL, GCST & ENISSION SAVING		გე შე <b>შე</b>	2623 496 91 2054 91		-651614 -484190 11442 0 11442	8671622 7252648 871105 871105		6755976 -1156103 -177702 8161452 -177702	2620645 529107 96292 2212959 96292	9576824 -626996 -61410 10374411 -81410	

11

	DIESEL, LOW SPEED, PETROLEUM BOILER GRADE	PETROLEUR	1 BOXLER GR	ADE	are sta	*** STRATEGY HEAT PUMP	AT PUMP			
CATEGORY	TOTAL FUEL SAVINOS 10**10 BTU	UTILITY FUEL SAVINGS 10**12 ETU	COST S	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	MISS	IONS SAVIN FER YEAR UTILITY	65  70TAL
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING	627 648 450 450 450	9013 3068 1359 5532 1359 0	!	-2608598 -1772671 170014 0	44192432 37109376 12943745 12943745		1268938 -6773348 -2640467 20708064 -2646467		9794866 3260971 1430793 6140644 1430798	22464600 -3512376 -1209669 26648704 -1209669
CATEGORY	HAT HATURAL PETROLEUM GAS DISTILLATE	NATI FU PETROLEUM DISTILLATE	HATIONAL FUEL SAVINGS SUMNARY FUEL SAVINGS 10**12 BT UN PETROLEUN COAL DERI ATE BOILER GAS DISTILL FUEL	SAVINGS S 10* COA GAS D	U VED ATE	BOILER	COAL	OTHER SAVINGS	TOTAL FUEL	
SITE PLUS UTILITY TOTAL ALL	14336		1768		. 0		15579	2197		
FUEL SAVINGS CASES ONLY	803	-403	-3030	0	0		3238	3		648
	176	0	-1153	0	c	0	1432	•		450
EMISSIOMS SAVINGS CASE DALY	13926	0	5356	0	0	0	11931	2132		•
<pre>fuel &amp; cost Savings cases fuel,cost &amp; enission Saving</pre>	176 0	00	-1158	00	<b>0</b> 0	00	1432	00		450
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14636	-409	1768	0	0	٥	15579	2197		627
FUEL SAVINGS CASES ONLY	803	-409	-3030	0	0	0	3238	77		649
COST SAVINGS CASES CHLY	176	0	-1158	•			1432	•		450
FRISSIONS SEVIESS CASE ONLY	908KT		7.50	• •		•	11011	6216		2
FILE B COMM SAVINGS CARRO	91.1	•	0011	•	<b>a</b> c	•	6671	4100		9 6
FUEL & COURT DAVINGS CASES	0.7	-	6611-	۰ د	<b>&gt;</b> (	<b>&gt;</b> (	76 41	5 (		to o
FUELICUSI & CHISSION SAVING	<b>5</b>	>	>	5	<b>ɔ</b>	>	•	>		•

OI ECS SIZE (NW)	0.90	0.00	0.00	0.00	0.00	0.00	0.00	00.00	0.00	0.00	0.00	0.00	00.00	6.79	0.00	00.00	0.00	0.00	0.00	7.37	00.0	0.00	5.74	10.52	
HGS  TOTAL	84839	12922	51939	100548	111149	114165	113392	407564	128618	646865	84630	175345	71874	67412	13722	27403	101012	717096	2710745	53283	4864532	129844	80435	91356	10972462 292516 292516 10673948 292516
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	50256	83274	96163	96292	74301	216524	Ş	540819	34273	159056	57565	78782	4463	22168	7532	16628	313959	59693	521814	79390	95588	100465	2820845 327365 327365 2493461 327365
PUMP EMISS TOHS PLANT (	33502	5835	31683	17273	12986	17873	39091	189640	51753	108046	50357	16289	14309	-11369	9258	5235	93480	695002	2396786	0159-	4342768	50453	-8012	-9079	8151615 -34870 -34870 -34370 -34370
STRATEGY HEAT AL ENISSIONS SAVINGS RATIO	0.000	0.000	000.0	0.000	0.000	0.000	0.000	0.000	0.000	000.0	000.0	0.000	000.0	0.643	000.0	0.000	000.0	0.000	0.00.0	695.0	00000	0.000	0.587	0.593	i
*** STRATI CAPITAL EI COST S.	•	•	0	•	0	•	0	•	0	0	•	•	0	271702	0	•	0	•	•	344125	0	0	414785	512315	1542927 1542927 1542927 1542927
<u>က</u> တွ	0	0	0	•	0	0	•	0	0	•	•	•	0	20700	0	0	•	0	0	10562	0	0	11022	5552	60733 60738 60738 0 0 0 0
PETROLEUM DIST COST SAVING DOLLA RATIO \$000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.049	0.000	0.000	0.000	0.000	0.000	0.026	0.000	0.000	0.046	0.003	i
•	48.0	15.7	18.9	77.8	4.19	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.3	2623 306 306 308 738 308
INE, DIRE TOTAL FUEL AVIKSS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.4	0.0	0.0	0.0	0.0	0.0	29.3	0.0	0.0	45.9	52.1	163
OGY, GAS TURE FUEL EHERGY SAVINGS RATIO S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00.0	0.00.0	0.000	0.000	0.000	0.00.0	0.307	0.000	0.000	0.000	0.000	0.000	0.268	000.0	000.0	0.287	0.250	
HO. S CURRENT TECHHOLOGY,GAS T FUEL EHER THOUSTRY SAVINGS RATIO	HO.01 NEAT PACKING	NO.02 BAKINS	MO.03 MALT BEVERAGE	HO.04 WOVEN FABRIC MILL	HO.05 SAW MILL	NO.06 NEUSPRINT MILL	NO.07 WRITING PAPER MILL	NO.03 CORRUGATED PAPER	HO.09 BOX BOARD	KO.10 CHLORINE	HO.11 ALUMINA	HO.12 LOW DENS. FOLYETHYL	HO.13 HI DENS. POLYETHYL	HO.14 POLYVINYL CHLORIDE	HO.15 STYPENE-BUT. RUB.	NO.16 NYLGN	NJ.17 STYRENE	NO.18 ETHYLENE	HO.19 PETROLEUM REFINING	MO.20 TIRES	NO.23 INTEGRATED STEEL	HO.24 GRAY IRON FOUNDRY	MO.25 COPPER	R VEHICLE	FUCL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE CHLY FUCL & COST SAVINGS CASES FUCL, COST SAVINGS CASES

- COGEMERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUGNARY

07						
	INGS 1 TOTAL	31201168 791939 791939 30409232 791939	JTAL FUEL	6 3 4 6 3 4 6 3 4	0 434 0	6 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 4 3 4 4 4 3 4
	EMISSIOMS SAVINGS TOMS PER YEAR PLANT UTILITY TO	9794866 896619 856619 8398249 896619	3 10 E	2197 46 46	2151 46 0	2197 46 46 2151
d d	EMISSIONS TONS PER PLANT UTILI	21406288 -104631 -104681 21510976 -104681	COAL OTHER FUEL SAVING		14618 2 960 0	15579 2 960 960 14618 2
*** STRATEGY HEAT PUMP		, 2			000	0000 81 - 51
*** STRAT	CAPITAL . COST \$000	3947676 3947676 3947676 3947676	S SUITHARY  10**12 BTU  COAL DERIVED  DISTILLATE BOILER  FUEL	•••	000	0000
DIST	SAVINGS C. DULLARS \$000	164833 164833 184833 184833	MATIONAL FUEL SAVINGS SUNNARY FUEL SAVINGS 10**12 BT UN PETROLEUM COAL DERI ATE BOILER GAS DISTILL FUEL	000	000	0000
PETROLEUM DIST	COST S		TIONAL FUEL S FUEL SAVINGS PETROLEUM E GOLLER FUEL	5983 6	5977 6 0	5983 6 6 7795
CT FIRED,	UTILITY FUEL SAVINGS 10**12 BT	9018 833 833 8130 8180 838	HATIC FULENT FOISTILLATE	-950 -950 -950	0 056-	056 - 056 - 056 -
TURBINE, DIRECT FIRED,	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	HATURAL PE GAS DI	14813 371 371	14442 371 0	14813 371 371 14442
YEAR : 1990 HO. 5 CURRENT TECHNOLOGY,GAS TO		S ONLY S CALY CASE ONLY 35 CASES TON SAVING		\$ 011LY \$ 011LY \$ 011LY	CASE ONLY 38 CASES (ON SAVING	JEL CONVERSION 5 ONLY 5 CHLY CASE ONLY
EAR : 1990 10. 5 CURRENT	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIGNS SAVINGS CASE ONLY FUEL & COST SAVINGS CASE FUEL, COST & ENISSION SAVING	CATEGORY	SITE PLUS UTILITY TOTAL ALL FUEL SAVINGS CASES OHLY COST SAVINGS CASES ONLY	EMISSIONS SAVINOS CASE ONLY FUEL & COST SAVINGS CASES FUEL,COST & EMISSION SAVING	THCLUDING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINJS CASES ONLY COST SAVINJS CASES ONLY ENISSIONS JAVENS CASE ONLY

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01 ECS SIZE (154)	0.00	0.00	0.00	1.97#	0.00	0.00	00.00	0.00	0.00	0.00	0.00	18.32	0.00	0.00	0.00	9.00	0.00	00.00	00.00	0.00	0.00	0.00	0.00	00.00	
1165  TOTAL	64839	22621	51939	60432	111149	114165	113392	407564	125618	648365	84630	114541	71874	104850	13722	27403	10101	717096	2710745	93580	4864532	129844	136956	154091	11066534 174973 0 10393562 0
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83274	98163	96292	74301	518524	76864	540819	34273	159056	57565	78782	4463	22168	7532	16628	313959	26963	521814	79390	88446	100465	2620845 242331 242331 2576514
PUMP EMIS TOMS PLANT	33502	5835	31683	-22843	12986	17873	39091	189040	51753	108046	50357	-44515	14309	56093	9258	5235	93480	700469	2396786	33988	4342768	50453	48510	53626	8247638 -67358 0 8315046
STRATEGY HEAT IL ENISSIONS SAVINGS RATIO	0.000	0.000	0.000	109.0	0.000	0.000	0.000	0.00.0	0.000	0.000	0.000	0.653	000.0	000.0	000.0	000.0	0.000	0.00.0	0.00.0	0.00.0	0.000	0.00.0	0.000	0.000	i
*** STRAT CAPITAL E COST S \$000	•	•	0	1125802	0	0	0	0	0	•	•	717006	•	0	0	0	•	0	•	0	0	0	0	0	1842803 1642003 0
SAVIHOS DOLLARS \$000	0	0	•	+2026-	•	•	•	۰	0	0	•	-41577	0	0	•	0	0	•	•	•	0	0	•	0	-138651 -13651 0 0 0 0
	0.000	0.000	0.000	-0.245	0.000	0.000	000.0	000.0	0.000	0.000	0.00.0	-0.065	0.000	0.000	000.0	000.0	0.000	0.00.0	0.000	000.0	0.00.0	0.000	0.000	0.000	1
IPED, PETROLEUM DIST UTILITY COST FUFL SAVINGS RATIO	43.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	10.2	293.3	55.8	4.784	74.2	82.6	93.8	2623 226 2397 2397
<b>u.</b>	0.0	0.0	0.0	24.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60000
MAY - PPOCE 03Y,CCTB.C) FUEL ENTEGY SAVINGS RATIO	0.00.0	0.000	0.000	0.224	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.259	0.000	0.000	000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	
CTAS GENEPAL SURMARY - PPOCESS LEVEL NO. 6 CURPENT TECHNOLOSY, CCTS.COCLE, DIP. FUEL ENERGY TOTAL SAVINGS FUEL RATIO SAVINGS	HO.01 MEAT PACKING	HO.OZ BAKINS	HO.03 MALT BEVERAGE	HO.04 HOVEN FASRIC MILL	HO.05 SAU MILL	ho.05 NEWSPRINT MILL	HO.07 HAITING PAPER MILL	NO.08 CORRUGATED PAPER	NO.09 BOX BC1RD	HO.10 CHLCRIME	HO.11 ALUHINA	RO.12 LOW DENS. POLYETHYL	RO.13 HI DENS. FOLYETHYL	NO.14 FOLYVINYL CHLORIDE	HO.15 STYRENE-BUT. RUB.	RO.16 HYLCH	MO.17 STYPERE	NO.18 ETHYLENE	NO.19 PETROLEUM PEFINING	MO.20 TIRES	HO.23 INTEGRATED STEEL	NO.24 GRAY IPON FOUNDRY	HO.25 COPPER	HO.25 HOTOR VEHICLE	CMLF ONLF CASE OF S CASE ON SAV

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIO: AL SUBBARY

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•		. 000													
	HGS  TOTAL	31331680 687589 0 30644696		- E - F	271	271	•	•	•	173	271	0	•	0	0
	H 22	9794866 9794866 953581 0 8641286		TOTAL FUEL	<b>7</b>	71	, o	•	•	ŗ.	17	0	Q	•	•
	EMISSIO TONS P			OTHER SAVINGS	2197	-	2180			2197	-		2160		
	PLANT	21536816 -265992 0 21802800		COAL	15579	930	14649	0	•	15579	930	0	14649	•	0
בפו עבא				BOILER FUEL	•	0 0	• •	0	•	•	•	0	0	0	0
*** SIKAIEGI NEAL POT	CAPITAL COST \$000	5737025 5737025 5737025 0	IWARY	່ ຄ ພ	•	00		0	0	0	0	•	0	0	0
		-393612 -393612 0	NATIONAL FUEL SAVINGS SUNMARY	6.45 6.45	•	0 6		•	0	0	0	0	0	0	0
LEUN DIST.	_	;	OHAL FUEL	FUEL SAVINGS PETROLEUM E BOILER FUEL	0909	61	6042	0	0	0909	19	0	6042	0	0
reu, Pe i Ku	UTILITY FUEL SAVINGS 10**12 BT	9016 391 0	HATI	- ROLEUM TILLAT	-779	-779	0	0	0	-779	-779	0	0	0	0
CICLE, UIR.FI		271 271 0		HATUPAL PET GAS DIS	14865	65	14783	0	0	14865	35	0	14730	0	0
NO. 6 COPPENS SECTIONS OF SECTIONS OF STREET SERVICED DIST.	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING		CATEGCRY	SITE PLUS UTILITY TOTAL ALL	FUEL SAVINGS CASES ONLY	ENISSIGNS SAVINSS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSICH SAVING	INCLUDING COAL FUEL CCNVERSION TOTAL ALL	FUEL SAVINGS CASES OHLY	COST SAVINGS CASES ONLY	ENISSIONS SAVINSS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

EMISSIONS SAVINGS ECS TONS PER YEAR SIZE I UTILITY TOTAL (FL.)	37327 51337 88665 0.00	6501 16786 23287 0.00	35301 20256 55558 0.00	98327 83274 -15052 2.60	14469 98163 112632 0.00	73677 96292 22614 77.96	52173 74301 22128 20.50	628 218524 429152 0.00	57664 76864 134528 0.00	654 540818 90165 54.53	250 34273 -25976 41.21	229 159056 10827 23.23	268 57565 -9703 14.66	257 78782 -24476 11.80	-9781 4463 -5318 4.14	26739 22168 -4571 5.68	104155 7532 111687 0.00	461 16628 797089 0.00	149 313958 -469190 80.64	434 59693 -19741 15.16	768 521814 4664582 0.00	997 79390 9493 18.53	263 89446 -25837 10.70	368 100465 -19923 20.44	2020343 615261 0 0 1027904 661717
T PUMP S	37.	<del>-</del>	35	-98	<b>3</b> 1	-73	-52	210628	57	-450654	-60250	-148229	-67268	-10325	6-	-26	701	73046	-78314	-79434	4342768	-69997	-114263	-120368	3331767 0 0 5589274 0
TEGY HEAT EHISSIONS SAVINGS RATIO	0.000	0.000	0.000	-0.147	0.000	0.195	0.188	0.000	0.000	0.136	-0.297	0.061	-0.132	-0.227	-0.366	-0.163	0.000	0.000	-0.157	-0.203	0.000	0.070	-0.181	-0.124	
*** STRATEGY HEAT CAPITAL ENTSSIONS COST SAVINGS \$000 RATIO	0	٥	0	1737294	0	451936	538576	0	•	2975507	474517	1128577	592199	93166	151977	297949	•	0	6976766	1107866	٥	531593	1357733	1609642	20913958
R. B.G. SAVINSS DOLLARS \$000	o	•	0	-396630	•	60056-	-59773	0	0	-769693	-233483	-334191	-207547	-357198	-49327	-91173	0	0	-3540878	-310652	0	-143162	-414953	+5655+-	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
COAL DE COST	000.0	0.000	0.000	-1.000	000.0	-0.216	-0.122	000.0	0.000	-0.310	-0.528	-0.523	-0.739	-0.8.15	-0.675	-0.855	0.000	0.000	-0.240	-0.767	0.000	-0.257	-0.706	-0.607	
S PSIA(EXT),COAL DER UTILITY COST S, FUEL RUEL 8	48.0	15.7	10.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	143.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.3	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
- PROCESS LEVEL STEAN TURBING, 615 ENERGY TOTAL U AVINGS FUEL ATIO SAVINGS S	0.0	0.0	0.0	-57.7	0.0	-11.7	₹. 1	0.0	0.0	-112.2	-50.0	-55.9	-38.7	-65.3	-8.9	-16.1	0.0	0.0	-693.5	-53.0	0.0	6.91-	-73.0	+.07-	1331
( ) ( )	0.000	0.000	000.0	-0.536	000.0	-0.097	-0.013	0.000	0.000	-0.168	-0.450	-0.320	-0.506	-0.593	-0.470	-0.553	0.000	0.000	-0.170	-0.485	0.000	-0.129	-0.456	-0.337	
CTAS GENERAL SURBARY - PROC NO. 7 ADVANCED TECHNOLGSY,STEAN FUEL ENERG INDUSTRY SAVINGS RATIO	NO.01 HEAT PACKINS	NO.02 BAKING	NO.03 MALT BEVERAGE	HO.04 MOVEN FAERIC HILL	HO.05 SAW MILL	HO.06 NEWSFRINT MILL	HO.07 WRITING PAFER HILL	NO.03 CGRPUSATED PAPER	NO.09 EOX EOAPD	NO. 10 CHLORINE	HO.11 ALUMINA	HO.12 LOW DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	80.14 POLYVINYL CHLORIDE	NO.15 STIRENE-EUT. RUB.	HO.16 HYLON	NO.17 STYRENE	NO.18 ETHYLENE	HO.19 PETROLEUM REFIHING	HO.20 TIMES	NO.23 INTEGRATED STEEL	MO.24 GRAY IROM FOUNDRY	NO.25 CGPPER	HO.26 HOTOR VEHICLE	TOTAL

- COSENERATION TECHNOLOGY ALTERNATIVES STUDY -

		JGS TOTAL	17634960	16435888	. =			0 (			-9227	•	•	•	- 0
		EMISSIONS SAVINGS TONS PER YEAR - T UTILITY T	9794866	4 2714211 0 0 0 0	TOTAL OTHER FUEL SAVINGS	2197	• •	722	• •		5- 2613	0	0	722	00
	AT PUMP	EM T PLANT	8040107	15721684	COAL	155/3		8002	• •		-2700	0	0	8002	<b>0</b> 0
	*** STRATEGY HEAT PUMP		¦ g••		BOILER	-20655	• •	0 0	•		3	0	0	0	00
	S ***	CAPITAL COST \$000	67408240		2 ¥ K C	. 00	• •	0 (	•		0	0	0	0	<b>.</b> .
HATICHAL SURIERY	P. B.G.	COST SAVINGS DOLLARS \$000	-21644688	000	5AVIRGS 10 CO GAS	. 00	• •	0	• •		0	0	0	0	00
NATICHAL	),COAL DER		; '		TICHAL FUEL S FUEL SAVINGS PETROLEUM E POILER FUEL	6082		3142	0 0		3142	•	0	3142	• •
	PSIACEXT	UTILITY FUEL SAVINGS 10**12 BT	9018	2548	NATIO FU PETROLEUN I DISTILLATE			0 0	• •		0	0	0	0	00
	,STEAM TURBINE,615 PSIA(EXT),COAL DER. B.G.	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU	-3744	• • •	HATINAL PETROLEUM GAS DISTILLATE	1 +808	, 0	1916 6	• •		5956	0	0	7976	90
Soot . Beax	KCED TECHNOLOGY	CATEGGRY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY	ENISSIONS SAVINSS CASE ONLY FUEL & COST SAVINSS CASES FUEL,COST & ENISSION SAVING	CATEGORY	SITE PLUS UTILITY TOTAL ALL FIRE SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ENISSICAS SAVINOS CASE ONLY	FUEL, COST & ENISSION SAVING	INCLUDING COAL FUEL CONVERSION	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINSS CASES ONLY	EMISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES FUEL,COST & ENISSION SAVING

01 ECS SIZE (131)	90.00	37 0.00	00.00	76 2.79	32 0.00	37 79.00	61.12 23	00.0 25	00.00 82	26 55.11	71 41.06	77 23.29	94 15.84	59 13.09	15 4.38	85 6.20	67 0.00	23 37.87	43 79.26	67 15.18	32 0.00	4550 18.78	63 10.74	71 20.58	8 Q 9 0 Q 0
11658  TOTAL	88665	23287	55558	-31176	11263	18487	26222	429152	134528	67226	-27671	7577	-12194	-33159	-6015	-6185	111667	-225523	-554449	-26967	4864532	45	-4036	12662-	4940478 26222 -663486 5620398 26222
ENISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16766	20256	83274	98163	26296	74301	218524	76864	540318	34273	159056	57565	79762	4463	22168	7532	16628	313953	59693	521814	79390	95+68	100405	2820343 74301 1121387 1011276 74301
PUMP EMIS TONS PLANT	37327	6501	35301	-114450	14469	-77805	-48079	210628	57664	-473592	-61945	-151479	-69759	-111941	-10478	-30353	104155	-242150	-868406	-85660	4342768	-74841	-128509	-130436	2127630 -48079 -1784873 4863313 -48079
>44 STRATEGY HEAT PITAL EMISSIONS COST SAVINGS \$000 RATIO	0.000	0.000	0.000	-0.304	0.000	0.159	0.222	0.000	000.0	0.102	-0.316	0.043	-0.166	-0.307	-0.414	-0.292	0.000	-0.283	-0.185	-0.277	0.00.0	0.034	-0.283	-0.167	
CAPITAL COST	0	•	0	2936442	0	908269	854306	•	•	4467171	713967	1689236	971666	1648476	259283	497830	•	3016771	11176215	1751455	0	691869	2170766	2542465	36273184 E54806 21091616 0 854806
B) SAVINGS DOLLANS	0	•	0	-337727	•	52199	107817	0	0	130118	-89931	-74012	-90138	-191346	-27254	-56470	0	675323	2927969	-165946	0	62654	-211504	-233096	2473633 107317 3956380 107517
COSL(AFF COST S	000.0	0.000	0.000	-0.852	0.000	0.120	0.220	0.000	000.0	0.052	-0.203	-0.116	-0.321	-0.453	-0.377	-0.549	000.0	991.0	0.199	-0.417	0.000	0.112	-0.360	-0.308	•
PSIALEXI),COAL(AFB) UTILITY COST SA FUEL D SAVINGS RATIO	43.0	15.7	18.9	77.8	91.7	4.16	59.1	205.4	72.5	499.1	32.0	143.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	4.67.4	74.2	82.6	93.8	2623 59 1033 947 648 0
5	0.0	0.0	0.0	-73.2	0.0	-12.4	7.5	0.0	0.0	-113.2	-47.7	-51.6	-37.7	-73.0	-3.9	-19.2	0.0	6.252-	-743.5	-56.6	0.0	-23.0	-03.6	4.47-	-1634
ARY - PROCE COST,STECH TO FUEL ENERSY SAVINGS RATIO	0.00.0	0.000	0.000	-0.679	0:030	-0.103	0.067	0.000	000.0	-0.169	-0.430	-0.236	-0.493	-0.634	-0.471	-0.666	0.000	-0.241	- 0.182	-0.518	0.000	-0.149	-0.522	-0.357	≻ ໘
CTAS GENTRAL SUMBARY - PROCEES LEVEL NO. 8 AGYANGED TECHNOLOGY,STEVN TU-BING,6 FUEL ENERSY TOTAL SAYINGS FUEL RATIO SAVINGS	NO.01 REAT PACKING	KO.02 BAKING	HO.03 MALT BEVERAGE	HO.04 WOVEN FAERIC MILL	1:0.05 SAW MILL	RO.06 NEWSFRINT MILL	HO.07 PRITING PAPER HILL	NO.03 CORRUGATED PAPER	KO.09 BOX BOARD	HO.10 CHLORINE	HO.11 ALUMINA	KO.12 LOW DEMS. POLYETHYL	NO.13 HI DENS. POLYETHIL	NO.14 FOLYVINIL CHLOPIDE	13.15 STYRENE-EUT. RUS.	110.16 11YLON	NO.17 STYRENE	NO.13 ETHYLENE	NO.19 FETROLEUM PEFININS	NO.20 TIRES	HO.23 INTEGRATED STEEL	HOLEY GRAY IFON FOUNDRY	HO.25 COPPER	#DIC#	TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES CHLY ENISSICHS SAVINGS CASE CHLY FUEL COST SAVINGS CASES FUEL, COST SAVINGS CASES

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURTIARY

YEAR : 1990			MATION	HATIOHAL SURTARY						
1:0. 8 ADVANCED TECHNOLOGY, STEAM TURBINE, 615 PSIA(EXT), COAL(AFB)	TURBINE, 61!	5 PSIA(EXT	I),COALCAF	(8)	*** STRATEGY HEAT PUMP	TEGY HE	AT PURP			
	TOTAL	UTILITY	COST	SAVINGS	CAPITAL		-	EMISSIONS SAVINGS	SAVIN	SS
CATEGORY	FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	FUEL SAVINGS 10**12 BT	2	DOLLARS \$000	\$000 \$000		PLANT	TONS PER YEAR LANT UTILITY	YEAR ITY	TOTAL
TOTAL ALL			•	1 0000				1		
17 ALL	0000-	9104		0277070	76696767		Ş	くか まらい	10011/	5042/94
FUEL SAVINGS CASES CHLY	===	878		1602059	12701566		-714402		1104040	389638
COST SAVINGS CASES ONLY	- 3882	4183		13381596	76414560		-652923	-	4628113	-1901106
EMISSIONS SAVINGS CASE ONLY				•			90K 785.9		2541625	12559484
FIRE & COST CAVING CACES	` =	9 6		1402050	77310261		00000			10000
FUEL, COST & EMISSION SAVING	•	0		1005031	0		•			<b>9</b>
		NATI	IOHAL FUEL	NATIONAL FUEL SAVINGS SUPPLARY	Urdiary					
		FU FU	FUEL SAVINGS	;	10**12 BTU		:			
CATEGORY	GAS DI	ш	EOILER BOILER	6.4S	DISTILLATE BOT	BOILER	COAL	OTHER	FUEL	د.
			FUEL		2	FUEL	FUEL	SAVINGS		
SITE PLUS UTILITY	! ! ! ! !	 	# 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	, ; ; ; ; ;	; ; ; ; ; ;	!			! ! ! !	<u> </u>
TOTAL ALL	14508	-425	6092	0	0	0	-15843	2197	4	-5860
FUEL SAVINGS CASES ONLY	219	0	343	0	•	0	-452	•	1	111
COST SAVINGS CASES ONLY	11032	•	4215	•	•	•	-20517	1367	r,	3882
EMISSIONS SAVINGS CASE ONLY	2734	•	1291	•	0	•	7883	722		•
FUEL & COST SAVINGS CASES	519	0	343	•	•	0	-452	•		111
EL, COST & EMISSICH SAVING	•	0	•	0	0	0	•	•		•
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14803	-455	6082	0	0	•	-15843	2197	Ş	-5860
FUEL SAVINGS CASES CHLY	219	0	343	0	0	•	-452	•		111
COST SAVINGS CASES CHLY	11032	•	4215	0	0	0	-20517	1387	F)	-3382
ENISSICHS SAVINGS CASE ONLY	2784	•	1291	•	0	•	7883	722		0
FUEL & COST SAVINGS CASES	219	0	343	•	0	0	-452	•		111
EL, COST & ENIESION SAVING	•	0	•	•	•	0	٥	•		•

Color   Colo	CTAS GENERAL SUBBARY - FFOCESS LEVEL 9 ADVANCED TECHNOLOGY, DIESEL, MICH SPEED, COAL DER FUEL ENERGY TOTAL UTILITY	IARY - IFOCES DGY,DIESEL,H FUCL ENERGY	SS LEVEL HIGH SPEED TOTAL	J,COAL DER. UTILITY	015T. COST	SAVINGS	*** SIR CAPITAL	*** STRATEGY HEAT PITAL ENISSIONS	9.25	EMISSICHS SAVINGS	SKVINE	Ñ	01 ECS
0.000         0.000         0.000         0.000         17327         51317         6666           0.000         0.00         0.000         0.000         15.7         0.000         0.000         16.9	S	;	FUEL SAVINGS	FUEL SAVIESS	٠,	\$600 \$600	\$000 \$000	SAVINSS	PLANT	TONS PEP UTILI		OTAL	SIZE (ITH)
0.000         15.7         0.000         0.000         0.000         35.01         10.50         10.50           0.000         15.7         0.000         0.000         35.01         20.02         35.01         20.02         35.01         20.02         35.01         20.02         35.01         20.02         35.01         20.02         35.01         30.02		0.000	0.0	43.0	0.000	0		•	373		337	£8665	0.00
0.000         10.0         0.000         0.000         55.50		0.000	0.0		0.000	0		•	59		736	23287	0.00
0.000         0.000         0.000         0.000         19246         63275         10250           0.000         91.7         0.000         9.000         14469         98163         112632           0.000         91.7         0.000         9.000         19914         98163         112632           0.000         91.4         0.000         9.000         19914         98263         112632           0.000         9.000         9.000         19254         19264         19262         113625           0.000         9.000         9.000         9.000         19264         19452         19564           0.000         9.000         9.000         9.000         19464         19452         19452           0.000         9.000         9.000         9.000         19464         19464         19456           0.000         9.000         9.000         9.000         9.000         19464         19464           0.000         9.000         9.000         9.000         9.000         9.000         19464           0.000         9.000         9.000         9.000         9.000         9.000         9.000           0.000         9.000		0.000	0.0	18.9	0.000	0		•	353		1256	55558	0.00
0.000         0.000         0.000         0.000         14444         98164         112614           0.000         91.4         0.000         9.00         19914         98292         112614           0.000         9.0         9.00         43555         74301         117645           0.000         9.0         0.00         43555         74301         117645           0.000         0.0         0.00         21626         21625         74301         117645           0.000         0.0         0.0         0.00         21626         74316         24315         117645           0.000         0.0         0.0         0.00         17646         7454         74544         74545         74516           0.000         0.0         0.00         0.00         17649         7452         17566         17566           0.000         0.0         0.00         0.00         0.00         0.00         17566         17566         17566           0.000         0.0         0.000         0.000         0.000         0.000         17566         17566         17566           0.000         0.0         0.0         0.000         0.000         0.0		0.000	0.0	77.8	000.0	0		•	192		12.75	102520	0.00
0.000         0.000         0.000         4955         7430         11764           0.000         9.1.4         0.000         0.000         43555         74301         11764           0.000         9.0         0.000         205.4         0.000         205.4         11764         2185.4         74301         11764           0.000         0.0         72.5         0.000         0.000         21645         78264         14852         14852         117656         1176666         117666		0.000	0.0	7.16	000.0	0	•	•	164	•	1163	112632	0.00
0.000         0.000         0.000         0.000         43555         74301         117656           0.000         205.4         0.000         0.000         216626         218524         42915           0.000         0.00         205.4         0.000         0.000         5764         76864         117658           0.000         0.0         72.5         0.000         0.000         12046         76864         114528           0.000         0.0         72.5         0.000         0.000         12046         114528         114528           0.000         0.0         0.000         0.000         11462         0.000         11454         114528         114528           0.000         0.000         0.000         0.000         11444         114624         114528         114528           0.000         0.000         0.000         0.000         11464         114624         114644         1146		0.000	0.0	4.16	0.000	•	J	_	199		262	116266	0.00
0.000         0.000         0.000         0.000         5764         78954         42915           0.000         0.000         72.5         0.000         0.000         5764         7684         114528           0.000         0.000         0.000         0.000         12056         54019         641204           0.000         0.00         0.000         0.000         0.000         121425         87457           0.000         0.000         0.000         0.000         0.000         1145.0         117258           0.000         0.000         0.000         0.000         1184.0         11864         11864           0.000         0.000         0.000         0.000         0.000         11864         11864           0.000         0.000         0.000         0.000         11846         11864         11864           0.000         0.000         0.000         0.000         0.000         11845         11864           0.000         0.000         0.000         0.000         0.000         11845         11845           0.000         0.000         0.000         0.000         0.000         11845         11845           0.000		0.000	0.0	59.1	0.000	0	J	•	435		301	117656	0.00
0.000         0.000         57664         76664         76664         114526           0.000         0.000         0.000         120355         54019         641204           0.000         0.000         0.000         120355         54019         641204           0.000         0.00         0.000         18194         34273         87457           0.000         0.00         0.000         18149         15965         177205           0.000         0.00         0.000         18467         7526         177205           0.000         0.00         0.000         19664         177205         177205           0.000         0.00         0.000         19664         7526         177205           0.000         0.00         0.000         19676         14676         14750           0.000         0.00         0.000         19676         14675         111687           0.000         0.00         0.000         19676         11687         11687           0.000         0.00         0.000         19676         11687         11687           0.000         0.000         0.000         19676         19676         19676		0.000	0.0	205.4	0.000	•	Ū	•	2106		3524	429152	0.00
0.000         0.000         0.000         120365         540819         540819         641204           0.000 <td< td=""><td></td><td>0.000</td><td>0.0</td><td>72.5</td><td>0.000</td><td>0</td><td>J</td><th>•</th><td>576</td><td></td><td>9964</td><td>134528</td><td>0.0</td></td<>		0.000	0.0	72.5	0.000	0	J	•	576		9964	134528	0.0
0.000         32.0         0.000         0.000         53194         34273         67467           0.000         0.000         0.000         148.6         0.000         0.000         15949         159056         17205           0.000         0.00         0.000         0.000         15943         57565         73506           0.000         0.00         0.000         0.000         776         0.000         10766         4463         10766           0.000         0.00         0.00         0.000         0.000         10465         7356         10766           0.000         0.00         0.000         0.000         10415         7516         111667           0.000         0.00         0.000         0.000         75046         111667         79766           0.000         0.00         0.000         267049         31365         29445         111667           0.000         0.00         0.000         0.000         3757         59693         79450           0.000         0.000         0.000         0.000         34276         79390         162496           0.000         0.000         0.000         0.000         26746         14		0.00.0	0.0	1.659	0.000	0	J	•	1203		6101	902199	0.00
0.000         0.000         0.000         0.000         15945         159056         177205           0.000         0.000         0.000         0.000         15943         57565         73506           0.000         0.000         0.000         0.000         73.7         0.000         0.000         19943         57565         107501           0.000         0.000         0.000         0.000         0.000         10762         107601         10762         107601         10762         107601         107602         107602         107602         107602         107602         107602         107602         107602         107602         107602         107602         107602         107602         107602         107602         107602         107602         111667         1116		0.000	0.0	32.0	0.000	0	J	•	531		273	87467	0.0
0.000         0.00         0.000         15943         57565         73506           0.000         0.00         0.000         29079         78762         107661           0.000         0.00         0.000         78762         107661           0.000         0.00         0.000         7463         14519           0.000         0.00         0.000         7463         14519           0.000         0.00         0.000         104155         7532         111667           0.000         0.00         0.000         14629         779766         779766           0.000         0.00         0.000         14629         779766         779766           0.000         0.000         0.000         14629         77450         77450           0.000         0.000         0.000         14629         77450         77450           0.000         0.000         0.000         17469         146496         146496           0.000         0.000         0.000         146496         146496         146496           0.000         0.000         0.000         0.000         146496         146496           0.000         0.000         0	23.12 LOW DERS. POLYETHYL	0.000	0.0	148.6	0.000	0	•	•	181	-	950	177205	0.00
0.000         0.000         29079         78782         107861           0.000         4.2         0.000         0.000         4643         14519           0.000         20.7         0.000         0.000         5033         22168         26001           0.000         0.0         0.000         0.000         1643         14519         14519           0.000         0.0         0.000         0.000         1643         22168         22001           0.000         0.0         0.000         0.000         0.000         111687         111687           0.000         0.0         0.000         0.000         16620         79768         79768           0.000         0.0         0.000         0.000         4342768         51814         466458           0.000         0.0         0.000         0.000         5516         79369         19266           0.000         0.0         0.000         0.000         56056         192466         192466           0.000         0.0         0.0         0.000         5616         0.000         192466         192466           0.000         0.0         0.0         0.0         0.0 <td< td=""><td>HO.13 HI DENS. POLYETHYL</td><td>0.000</td><td>0.0</td><td>53.7</td><td>0.000</td><td>•</td><td>Ū</td><th>•</th><td>159</td><td>•</td><td>7565</td><td>73508</td><td>0.00</td></td<>	HO.13 HI DENS. POLYETHYL	0.000	0.0	53.7	0.000	•	Ū	•	159	•	7565	73508	0.00
0.000         0.00         0.000         0.000         4463         14519           0.000         0.00         0.000         0.000         22146         22166         26001           0.000         0.00         0.000         0.000         104155         7532         111667           0.000         0.00         0.000         0.000         16455         79706         111667           0.000         0.00         0.000         0.000         16620         79766         79766           0.000         0.000         0.000         0.000         14620         79766         79766           0.000         0.000         0.000         0.000         14620         79346         79346           0.000         0.000         0.000         0.000         1464562         764562         1464562           0.000         0.000         0.000         0.000         0.000         1464562         1464562           0.000         0.000         0.000         0.000         0.000         1464562         1464562           0.000         0.000         0.000         0.000         0.000         1464662         14644562           0.000         0.000         0.000<		0.000	0.0	73.7	000.0	•	Ū	0.000	290		3782	107861	0.00
0.000         0.000         5833         22168         28001           0.000         7.0         0.000         0.000         104155         7532         111667           0.000         0.000         0.000         104155         7532         111667         111667           0.000         0.000         0.000         70404         114629         79768         79768           0.000         0.000         0.000         0.000         2670494         113956         298455           0.000         0.000         0.000         0.000         113956         298455         298455           0.000         0.000         0.000         0.000         434276         59691         464565           0.000         0.000         0.000         0.000         434276         521814         464565           0.000         0.000         0.000         0.000         56215         142496           0.000         0.000         0.000         54050         162496         142496           0.000         0.000         0.000         54050         106465         142496           0.000         0.000         0.000         0.000         54050         162496         1		0.030	0.0	4	0.000	•	J	•	100		1463	14519	0.00
0.000         0.000         0.000         0.000         7532         111687           0.000         0.000         0.000         760461         16629         797068           0.000         0.000         0.000         760461         16629         797068           0.000         0.000         0.000         2670494         313956         2954452           0.000         0.000         0.000         37757         59693         97450           0.000         0.000         0.000         4342760         521814         4664562           0.000         0.000         0.000         4342760         521814         4664562           0.000         0.000         0.000         56051         79340         112496           0.000         0.000         0.000         56050         60466         142496           0.000         0.000         0.000         56050         162496         16215           0.000         0.000         0.000         56050         162496         16250644           0.000         0.000         0.000         0.000         1626044         11623739           0.000         0.000         0.000         0.000         0.000		0.000	0.0	0	0.000	•	J	•	58		168	10082	0.00
0.000         0.00         16.2         0.000         3         0.000         760461         16623         797086           0.000         0.000         2670494         313956         2984452         2984452         2984452         2984452         2984452         2984452         2984452         2984452         29884452 <t< td=""><td></td><td>0.000</td><td>0.0</td><td>7.0</td><td>0.000</td><td>0</td><td>J</td><th>•</th><td>1041</td><td></td><td>7532</td><td>111687</td><td>0.00</td></t<>		0.000	0.0	7.0	0.000	0	J	•	1041		7532	111687	0.00
0.000         0.00         2670494         313956         2934452           0.000         0.000         37757         59693         97450           0.000         0.000         0.000         434276         59693         97450           0.000         0.000         0.000         434276         59693         97450           0.000         0.000         0.000         434276         521814         4664562           0.000         0.000         0.000         0.000         135665         135665           0.000         0.000         0.000         0.000         142496         142496           0.000         0.000         0.000         54050         16215         160215           0.000         0.000         0.000         54050         16230         162319           0.000         0.000         0.000         0.000         162064         11623739           0.000         0.000         0.000         0.000         0.000         0.000         0.000           0.000         0.000         0.000         0.000         0.000         162064         11623739           0.000         0.000         0.000         0.000         0.000		0:0:0	0.0	16.2	0.000	0	Ū	•	7804		629	797088	0.00
0.000         0.00         457.4         0.000         0.000         434276         551814         4664562           0.000         0.000         0.000         434276         521814         4664562           0.000         0.000         0.000         56215         79390         135665           0.000         0.00         0.000         56215         79390         142496           0.000         0.000         0.000         54050         65446         142496           0.000         0.000         0.000         54050         160215           0.000         0.000         0.000         54050         162496           0.000         0.000         0.000         54050         162496           0.000         0.000         0.000         54050         162496           0.000         0.000         0.000         54050         162496           0.000         0.000         0.000         0.000         0.000           0.000         0.000         0.000         54050         162496         162496           0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000           0.000		0.00.0	0.0	295.3	000.0	•	Ū	•	26704			239465	0.00
0.000 0.0 74.2 0.000 0 0 0.000 4342766 521814 4664562 0.000 0.000 0.000 4342766 135465 135465 0.000 0.000 0.000 0.000 135465 135465 0.000		0.000	0.0	55.8	0.000	0	J	•	37.7		663	97450	00.0
0.000 0.0 0.0 0.0 0.000 0 0 0.000 54050 65446 142496 0.000 0.000 0 0.000 54050 135465 140215 0.000 0 0.000 0 0.000 142496 142496 0.000 0 0.000 0 0.000 142496 140215 0.000 0 0 0.000 0 0 0 0 0 0 0 0 0 0 0		0.000	0.0	4.87.4	0.000	•	Ū	•	43427			285498	00.0
0.000 0.0 0.5.6 0.000 0 0 0.000 54050 85446 142496 0.000 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0 0.000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0.000		74.2	0.000	0	J	•	562	10	9390	135605	00.0
0.000 0.00 93.8 0.000 0 0 0.000 59750 100465 140215 160215 0 0 0.000 59750 100465 140215 160215 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0.00.0		95.6	0.000	•	J	0	540		9559	142496	00.0
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Constitution of the state of th

YEAR : 1990										
NO. 9 ADVANCEU TECHNOLOGY, DIESEL, HIGH SFEED, COAL DER. DIST.	EL,HIGH SFEED.	COAL DER.	. D1ST.		*** 51	*** STRATEGY HEAT PURP	AT PURP			
	_	UFILITY	COST SAVINGS	AVINGS	CAPITAL		_	ENISSIONS SAVINGS	SAVIN	š
CATEGORY	FUEL SAVINGS S	FUEL SAVINGS	_	SOLLARS \$300	<b>6003</b>		PLANT	PLANT UTILITY	11.64	TOTAL
	10**12 BTU 10**12 BTU	10-+12 BT	-				1 1 1 1 1	1	i	1
TOTAL ALL		9018		9			23438048	9		33232880
FUEL SAVINGS CASES ONLY	•	0		•		•		•	•	
COST SAVINGS CASES CYLY	•	0		0		•		•	•	
EMISSIONS SAVINGS CASE ONLY	0	90106		•		•	23438048		9794864	33232880
FUEL & COST SAVINGS CASES	0	•		•				•	•	
FUEL, COST & ENISSION SAVING	n	•		•				•	•	
		NATIC	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS S	UTHLRY					
		FU	FUEL SAVINGS	ł			ţ			
CATEGORY	GAS DIS	DISTILLATE	BOTLER FUEL	GAS D	DISTILLATE BOTLER FUEL	BOTLER	COAL	OTHER SAVINGS	120	
				-						:
SITE PLUS UTILITY										
TOTAL ALL	14870	•	6082	0	•	0	15579	2197		•
FUEL SAVINGS CASES ORLY	0	•	0	0	•	0	0	0		•
CCST SAVINGS CASES ONLY	0	0	•	0	•	0	•	•		•
EMISSIONS SAVINGS CASE ONLY	14870	•	6082	0	•	0	15579	2197		•
FUEL & COST SAVINGS CASES	0	0	0	0	0	•	•	•		•
FUEL, COST & ENISSICH SAVING	•	•	•	0	•	•	•	•		•
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	14870	0	6082	0	0	•	15579	2197		•
FUEL SAVINGS CASES ONLY	0	0	•	0	0	•	0	•		•
COST SAVINGS CASES ONLY	6	0	•	•	•	•	•	•		•
ENISSIONS SAVINGS CASE ONLY	14870	0	6032	0	0	•	15579	2197		•
FUEL & COST SAVINGS CASES	•	٥	0	0	•	•	•	0		•
FUEL, COST & ENISSICH SAVING	0	0	•	a	•	•	•	•		•

FI

ECS SIZE IPH	5 0.00	0 0.21*	00.a	0 2.40*	2 0.30	1 26.60	00.00	0.00	0:00	5 24.90	7 18.09	0 20.09	3 13.45	9 11.05	9 0.00	* 5.26*	00.0 2	9 0.00	9.00	3 7.40*	2 0.00	5 0.60	2 5.84*	8 10.68	i <b>c</b> tuomos
INGS  TOTAL	83665	-16156	5555	-93150	112632	-67781	117856	429152	134520	-450255	-33627	-146000	-62613	-136369	14519	-278%	111667	797068	2984452	-49573	43645E2	135605	-73792	-62818	6590228 -1266032 -516036 9346323 -518036
ENISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83275	99163	26296	74301	218524	75864	546819	34273	159056	57565	78782	4463	22168	7532	16628	313958	26963	521814	79390	88446	100465	<b>3</b>
FUND ENTS	37327	-34944	35301	-176465	14469	-164073	43555	210628	57664	-991074	-67901	-307054	-140178	-217171	10056	-50064	104155	780461	2670494	-109266	4342768	56215	-162230	-183263	5759379 -2603710 -1155146 -363092 -1155146
44* STRATEGY HEAT PITAL ENISSICHS COST SAVIPGS \$000 RATIO	000.0	-0.760	0.000	-0.909	0.000	-0.593	0.000	0.000	0.000	-0.681	-0.384	-0.835	-1.124	-1.283	0.000	-0.996	0.000	0.000	0.000	-0.509	0.00	0.000	-0.518	-0.517	i
*** STRA CAPITAL COST \$000	O	548305	0	1661352	•	853584	•	0	•	5359193	411611	1632914	642547	1364197	•	335589	•	•	•	152156	•	•	1168969	1539040	16662550 16652550 6212777 6212777
FR SRD SAVINGS DOLLARS \$000	•	-43213	•	99636-	•	00095	•	•	•	131419	-23359	-54723	-55693	-106974	•	-10546	•	•	٥	-33377	0	۰	-32021	-64336	517.73
7ED BOTLE COST PATIO	0.660	-0.303	0.000	-0.250	0.000	0.106	0.000	0.000	0.000	0.053	-0.053	-0.086	-0.198	-0.260	0.000	-0.174	0.000	0.000	0.000	-0.092	0.000	0.00.0	-0.054	-0.111	
COAL DERIVED BOILER SED UTILITY COST SAVIN FUEL DOLL SAVINGS PATIO \$00	40.0	15.7	16.9	77.8	91.7	4.16	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.3	20.7	7.0	16.2	293.3	55.3	4.37.4	74.2	32.6	93.8	1262 1265 1368 1378 591
ESEL, ICM STRED, AND THE BOT TOTAL 1953 FUEL 10 SAVINGS	0.0	7.2	0.0	51.6	0.0	39.4	0.0	0.0	0.0	200.4	<b>15</b>	35.7	6.6	10.0	0.0	4.9	0.0	0.0	0.0	10.1	0.0	0.0	26.7	39.1	* * * * * * * * * * * * * * * * * * *
GOTIDIESELI FUEL ENERGY SCYINGS RATIO	0.000	0.181	0.00.0	0.200	0.000	0.328	0.000	0.000	0.000	0.300	0.050	0.205	621.0	0.087	000.0	0.170	0.000	0.000	0.00.0	0.165	0.000	0.000	0.167	0.144	
HO.10 ADVANCED TECHNOLOSY DIESEL, LOW SYLED FUEL ENERGY TOTAL SAVINGS FUEL SAVINGS FUEL SAVINGS FUEL	HO. 01 HEAT PACEINS	KO. OZ DZKING	HO.03 HALT BEVERAGE	NO.04 KOVEN FAERIC MILL	HO.05 SAW MILL	NO.05 HEUSFRINT MILL	NO.07 WITHIS PAPER MILL	NO. 03 CORRUGATED PAPER	HO.09 EOX FOARD	13.10 CHCFINE	ED. 11 ALUHEMA	POLIZ LOU BENS. POLYETHYL	RO.13 HI DEHS. POLYETHIL	POLIS POLYVIER CHLORIDE	NO.15 STAPENE-EUT. RUB.	1:0.16 HYLON	RO.17 STRENZ	NO.10 ETHYLENE	HO. 19 PETFOLEUM REFINING	MO. CO TIRES	HO.23 INTEGANTED STEEL	NO.24 GRAY IPON FOUNDRY	KO.25 COPTER	HO.26 HOTOR VEHICLE	ALL 5 CASES ORLY 5 CASES ORLY AVINTS CASE OF SATINGS CASE ERISSION SAV

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUCHARY

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TOTAL	MATTOTAL DUANTINED TECHNOLOGY.DIESEL.LCH SPEED,COAL DERIVED BOTLER GRO	L, LCH SPEED	COAL DEPT	VED BOTLER GRO	030	*** STR	*** STRATEGY HEAT PUMP				
1591   9016   -965305   60754394   1140116     1591   4697   -93305   60754394   -1015067     1010   2462   979175   24740400   -466765     1020   2462   979175   24740400   -466765     1020   2462   979175   24740400   -466765     1020   2462   979175   24740400   -466765     1020   1020   1020   1020     1020   1020   1020   1020     1020   1020   1020   1020     1020   1020   1020   1020     1020   1020   1020     1020   1020   1020     1020   1020   1020     1020   1020   1020     1020   1020   1020     1020   1020   1020     1020   1020   1020     1020   1020     1020   1020   1020     1020		TOTAL FUEL SAVINSS 10**12 BTU	UTILITY FUEL SAVINGS 10+412 BT	COST 5	VINGS OLLAPS \$000	CAP1TAL COST \$000		PLANT	ENISSIGNS SAVINGS TONS PER YEAR PLANT UTILITY TO	SAVING YEAR 'TY	S  TOTAL
1591   4637   463165   60754364   11640116     1591   4637   4637   463766   4647685     1502   2462   979175   2474060   2467768     153		1 1	:	!					1	1	
1591		1561			-985305	60754384					9109/212
1036   2462   979175   24740600   -466765   1036   246765   246765   247206   246765   247206   246765   247206   246765   247206   246765   247206   246765   247206   246765   247206   246765   247206   246765   247206   246765   247206   246765   247206   246765   247206   246765   247206   247206   24720	בני סור ו	1651			- 930365	60/54354		-101506			-441/910
1050   2421   0   0   2163203	וז טינון	0.01			9/91/5	00404/42		9/99%-	-		VE 10:02-
1036   2462   979175   2474040   -466765	S CASE DIALY	•			•	•		216320	•		26193656
HATIGIAL FUEL SAVINGS SUTTURY  HATICIAL FUEL SAVINGS 10**12 BTU	DES CASES	1036			979175	247-0400		-46676	51 2647519		-2020134
HATIGHAL FUEL SAVINGS SUPTIARY	SSION SAVING	0	•		•	•			•	•	•
HATUZAL PETFOLEUM COAL DEMINER GOLLER GAS DISTILLATE BOLLER FUEL FUEL FUEL FUEL FUEL FUEL FUEL FUEL			HATI	GIAL FUEL S	AVINGS SU	PTIARY					
HATUTAL PETFOLEUM FETPOLEUM COAL DERIVED  GAS DISTILLATE COILER GAS DISTILLATE GOILER COAL  FUEL FUEL FUEL FUEL FUEL FUEL FUEL  14779 -408 6082 0 0 -5584 5373  220 0 223 0 0 -2253 2766  520 0 223 0 0 0 -2253 2766  520 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		***************************************		JEL SAVINGS	104	:		:			
THE PSTON 13557 0 5202 0 0 -5504 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			etfoleuri Istillate		1		 DILER FUEL	COAL	OTHER SAVINGS	TOTAL FUEL	
14777	# 1 2 1 1	1	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	;	1			8 1 1			;
H4777 -408 6082 0 -5504 1 122 -405 600 0 -5504 1 210 0 223 0 0 -2253 0 0 0 -2253 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11										
1222 -403 600 0 -5504 220 0 223 0 0 -2253 230 0 223 0 0 -2253 530 0 223 0 0 -2253 530 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		14779	-408	6082	0	•	-5504	15579	2197	==	1591
CHLY 1357 0 223 0 0 -2253 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SES ONLY	1222	904-	603	•	•	-5504	5393	8	=	1591
ES	SES OHLY	0 3 2	0	223	0	0	-2253	2786	•	Ξ	1036
510# 13557 0 520 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	US CASE CHLY	13557	0	5232	•	0	•	10186	2109		•
47 ERSION 13557 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	THES CASES	903	0	223	•	0	-2253	2786	•	Ξ	1036
TYERSION 13557 0 5202 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSICH SAVING	•	0	•	•	•	•	•	•		•
13557 0 5002 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FUEL CONVERSION										
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		13557	•	5005	0	•	•	10522	2197	•	-76
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ONLY 13557 0 5282 0 0 0 0 0 0 0 0 0 0 0	28ES C'11 Y	0	6	0	•	•	0	286	0	.,	286
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HO.03 MALT DEVERAGE FO.04 HOVER FAERIC MILL HO.05 SAW MILL HO.06 HEUSPPINT MALE HO.07 MRITING PAPER MILL

- COCENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

YEAR : 1990 HO.11 ADVANCED TECHHOLOSY,DIESEL,LOH SPEED,COAL(PULVERIZED)	SEL, LOU SPEED,	COALIPULVE	RIZED)		***	*** STRATEGY HEAT PUMP	AT PUMP			07
CATEGORY	TOTAL FUEL SAVINGS 10**12 BTU	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	COST S	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	SAVINGS YEAR TY TOTAL	. <del></del>
	1	i i i i i	;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1					!
TOTAL ALL	1259	9018		4733839	64264752		11223126	926 9794864	864 21017984	1984
FUEL SAVINGS CASES ONLY	1259	4692		4733939	64264752		-10461774			1041
COST SAVINGS CASES ONLY	1246	4661		4778899	63078512		-10392064			506
ENISSIONS SAVINGS CASE ONLY	0	4327		0	•	_	21684896	-	_	040
FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING	1246 0	4661		4776899	63078512	20	-10392064	64 498055 <b>3</b> 0 0	553 -5411506 0 0	1506 0
		NATIC	HAL FUEL	NATIOHAL FUEL SAVINGS SURMARY	HIYARY					
		FUE	FUEL SAVINGS	10**12 BTU	12 BTU	1 1 1 1	;			
CATEGORY	NATURAL PE GAS 01	PETROLEUM F DISTILLATE	PETROLEUM BOILER FUEL	GAS	E0 TE	 BOILER FUEL	COAL FUEL	OTHER SAVINGS	TOTAL FUEL	
	;		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!			
SITE PLUS UTILITY										
TOTAL ALL	14784	-408	6082	0	0	-814	10837	2197	1259	
FUEL SAVINGS CASES ONLY	1200	80÷-	773	0	0	-814	455	89	1259	
COST SAVINGS CASES ONLY	1500	-+08	768	0	0	-814	454	20	<b>9</b>	
EMISSIONS SAVINGS CASE ONLY	13594	0	5309	•	0	•	10412	2114	•	
FUEL & COST SAVINGS CASES	1200	-403	768	0	0	-814	459	2	1246	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	•	•	•	•	
INCLUDING COAL FUEL CONVERSION										
TOTAL ALL	13618	0	5395	0	•	0	11454	2197	1444	
FUEL SAVINGS CASES CHLY	233	0	86	0	0	0	1042	83	1444	
COST SAVINSS CASES ONLY	234	0	81	0	0	0	1046	70	1431	
EMISSICHS SAVINGS CASE ONLY	13534	0	5309	0	0	0	10412	2114	0	
FUEL & COST SAVINGS CASES	234	0	81	0	•	0	1046	20	1431	
FUEL, COST & ENISSION SAVING	0	0	٥	0	0	0	0	0	0	

E.

HO.12 ADVANCED TECHNOLOGY,GAS TUPE. FUEL ENERGY	EL 19ECT L UT	. EOILE COST S	SAVINGS	CAPITAL ENISSIONS	E1115510:45		ENTESTONS SAVINGS	THES
FUEL SAVINOS	FUEL SAVINGS	RATIO	5000 \$000	\$000 \$000	SAVINGS	PLANT	TONS PER YEAR UTILITY	TOTAL
•	0.0 48.0	000.0	•	0	0.000	33502	51337	84839
o	.0 15.7	000.0	•	0	0.000	5835	16786	22621
0.0	13.9	0.000	0	0	0.000	31683	20256	51939
0.0	77.8	0.000	•	0	0.000	17273	83274	100548
0.0	91.7	0.00.0	•	0	0.000	12986	98163	111149
0.0	91.4	000.0	0	J	000.00	17873	36295	114165
0.0	59.1	0.000	•	•	0.000	39091	74301	113392
0.0	205.4	0.000	0	•	0.000	189040	218524	407564
0.0	72.5	0.000	0	J	0.000	51753	76864	128618
0.0	499.1	0.000	0	J	000.000	108046	540819	648865
0.0	32.0	0.000	0	•	0.000	50357	34273	84630
0.0	143.6	0.000	0	0	0.000	16289	159056	175345
0.0	53.7	0.000	•	•	0.000	14309	57565	71874
0.0	73.7	0.000	٥	J	0.000	26099	78782	104880
0.0	4.2	0.000	0	J	0.000	9258	4463	13722
0.0	20.7	0.000	0	J	0.000	5235	22168	27403
0.0	7.0	0.000	•	J	0.000	93480	7532	101012
0.0	16.2	0.000	•	Ü	0.000	495002	16628	717096
0.0	293.3	0.000	0	Ū	00000	2396786	313959	2710745
0.0	55.8	0.00.0	0	Ū	0.200	33888	59693	93580
0.0	487.4	0.000	0	Ū	00000	4342768	521814	4864582
0.0	74.2	000.0	٥	•	0.000	50453	79390	129844
0.0	82.6	0.000	0	0	0.000	48510	9558	136956
0.0	93.8	0.00.0	0	0	000.00	53626	100465	154091
00	2623		• •			8346608	2820645	11169455
00	O #		00	<b></b>		8348508	2820845	0
00	2010		•					

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURMARY

	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TOTAL	9794866 31712096 0 0 0 9794866 31712096 0 0	TOTAL OTHER FUEL SAVINGS	0 2912	00		00				0 0		
AT PUMP	EMIS TOH PLANT	21917216	COAL OF	15579	0 0	_	00		155/4	0 (			>
*** STRATEGY HEAT PUMP		: 00000	D E GOILER FUEL	0	0 0	0	00	•	<b>-</b>	0 0	9 6	, c	>
	CAPITAL S COST \$000		S SUHTIARY 10**12 BTU - COAL DERIVED DISTILLATE		00		00	•	o (		<b>.</b>		
R. BOILER GRD	COST SAVINGS DOLLARS \$000		SAVING		0 0		00		2809		0 0		
FIRED, PETR.	UTILITY FUEL SAVINGS 10**12 BTU	9018 9018 9018 0	NATIONAL FUEL: FUEL SAVINGS PETROLEUM PETROLEUM DISTILLATE BOILER FUEL		0 0					0 0			9
URBINE, DIRECT	TOTAL U FUEL SAVINGS S		HATURAL PET GAS DIS	1487	00	14870	00		148/0	c	0.641	2	>
YEAR : 1990 HO.12 ADVANCED TECHNOLOGY, GAS TURBINE, DIRECT FIRED, PETR. BOILER GRD	CAVEGORY	TOTAL ALL  FUEL SAVINGS CASES OHLY  COST SAVINGS CASES CHLY  EHISSIONS SAVINGS CASE OHLY  FUEL & COST SAVINGS CASES  FUEL, COST & LHISSION SAVING	CATLGORY	SITE PLUS UTILITY TOTAL ALL	FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY	IISSIONS SAVINUS CASE ONLY	FUEL & COST SAVINGS CASES FUEL,COST & ENISSION SAVING	INCLUDING COAL FUEL CONVERSION	IOIAL ALL	FUEL SAVINGS CASES CHLY	EUST SAVINGS CASES ORLY ENTSGICKS SAVINGS CASE ONLY	FIRST & COST SAVINGS CASE ONLY	EL & CUST SAVINGS CASES

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| 83665              | 23287  | 55553  | 102520  | 112632   | 116206   | 117856  | 429152  
   
  | 134528   | 661204   | 87467   | 177205  | 73508  
  | 107861  | 14519   | 28001  | 111687   | 797068   
   | 2984452   | 97450  | 4664532  | 135605  
   | 142496  | 160215  | 11623739<br>0<br>11623739<br>0   |
| 51337              | 16786  | 20256  | 83275   | 98163  | 96292  | 74301   | 218524  
   
  | 76964  | 540919   | 34273   | 159056  | 57565  
  | 78782   | 6463  | 22168  | 7532   | 16628  
   | 313958  | 59693  | 521814   | 79390   
   | 83446   | 100465  | 2820344  |
| 37327              | 6501   | 35301  | 19246   | 14469  | 71661  | 43555   | 210628  
   
  | 57664  | 120335   | 53194   | 18149   | 15943  
  | 29079   | 10056   | 5833   | 104155   | 190042   
   | 2670494   | 37757  | 4342768  | 56215   
   | 54050   | 59750   | 6802891<br>6802891<br>6802891  |
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   | 0.000   | 0.000   |  |
| 46.0               | 15.7   | 18.9   | 77.8  | 91.7   | 91.4   | 59.1  | 205.4   
   
  | 72.5   | 499.1  | 32.0  | 143.6   | 53.7   
  | 73.7  | 4.2   | 20.7   | 7.0  | 16.2   
   | 293.3   | 55.8   | 487.4  | 74.2  
   | 82.6  | 93.8  | 2623   |
| 0.0                | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0   
   
  | 0.0  | 0.0  | 0.0   | 0.0   | 0.0  
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| NO.01 MEAT PACKING | HO.02 BAKING                                     | HO.03 MALT BEVERAGE  | NO.04 WOVEN FABRIC MILL   | NO.05 SAW MILL   | HO.05 KCHSPRINT MILL   | NO.07 KRITING PAPER MILL  | NO.03 CORPUGATED PAPER  
   
  | NO.09 BOX E0ARD  | NO.10 CHLORINE   | RO.11 ALUMINA   | RO.12 LOW DENS. POLYETHYL   | NO.13 HI DENS. POLYETHYL   
  | NO.14 POLYVINYL CHLORIDE  | NO.15 STYRENE-BUT. RUB.   | HO.16 NYLON  | NO.17 STYRENE  | NO.18 ETHYLENE   
   | HO.19 PETFOLEUN REFIHING  | NO.20 TIRES  | NO.23 INTEGRATED STEEL   | HO.24 CRAY IRON FOUNDRY   
   | NO.25 COPPER  | 7   | FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASE FUEL & COST SAVINGS CASES   |
|                    | 0.000 0.0 46.0 0.000 0 0 0.000 37327 51337 88665 | 0.000         0.00         46.0         0.000         0         0.000         37327         51337         88665           0.000         0.000         0.000         0.000         6501         16786         23287 | 0.000         0.0         0.000         0         0.000         37327         51337         68665           0.000         0.000         15.7         0.000         0         0.000         6501         16786         23287           0.000         0.000         18.9         0.000         0         0.000         35301         20256         5553 | 0.000         0.0         46.0         0.000         0         0.000         5137         5137         68665           0.000         0.000         15.7         0.000         0         0.000         6501         16786         23287           0.000         0.000         18.9         0.000         0         0.000         35301         20256         55553           0.000         0.000         0.000         0.000         19246         83275         102520 | 0.000         0.0         46.0         0.000         0         0.000         57327         51337         68665           0.000         0.0         15.7         0.000         0         0         0.000         1676         23287           0.000         0.0         16.9         0.000         0         0.000         35301         20256         55553           0.000         0.0         77.8         0.000         0         0         19246         83275         102520           0.000         0.0         0.0         0         0.000         14469         95163         112632 | 0.000         0.0         0.0         0.000         0.0 | 0.000         0.000 <th< td=""><td>0.000         0.0         0.000         0         0.000         57327         51337         63665           0.000         0.000         0.0         0.000         0         0.000         16786         23287           1         0.000         0.0         0.000         0         0.000         35301         20256         55533           1         0.000         0.0         0.000         0         0.000         19246         83275         102520           1         0.000         0.0         0.000         0         0.000         14469         93163         112632           1         0.000         0.0         0.000         0         0.000         19446         95163         116206           1         0.000         0.0         0.000         0         0.000         19446         95163         116206           1         0.000         0.0         0.000         0         0.000         19446         95163         116206           1         0.000         0.0         0.000         0.000         0         0.000         19446         95163         116206           1         0.000         0.0         0.000         0.</td><td>0.000         0.00         46.0         0.000         0         0.000         5137         5135         63665           0.000         0.00         0.00         0.000         0         0.000         1676         21287         21287           1         0.000         0.0         0.000         0         0.000         1676         5553         16250         16253           1         0.000         0.0         0.000         0         0.000         19246         83275         102520         162520           1         0.000         0.0         0.000         0         0.000         19446         98163         112632           1         0.000         0.0         0.000         0         0.000         19914         96292         116206           1         0.000         0.0         0.000         0         0.000         19914         96292         116206           1         0.000         0.0         0.000         0         0.000         19914         96292         116206           1         0.000         0.0         0.000         0         0.000         0         11620         11620         11620         11620         1</td><td>0.0000         0.00         46.0         0.0000         0.0000         37327         51337         68665           0.0000         0.000         15.7         0.0000         0         0.000         16.786         21287         16.786         21387         21387           1         0.000         0.0         16.9         0.000         0         0.000         19246         81253         102550           1         0.000         0.0         77.8         0.000         0         0.000         14469         93163         112632           1         0.000         0.0         91.7         0.000         0         0.000         14469         93163         112632           1         0.000         0.0         91.4         0.000         0         0.000         14469         93163         112636           1         0.000         0.0         0.000         0         0.000         0.000         110864         93163         110866           1         0.000         0.0         0.000         0         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000</td><td>0.0000         0.0000&lt;</td><td>0.000         0.00         46.0         0.000         0.000         37327         51337         68665           1.000         0.000         0.00         15.7         0.000         0         0.000         16786         23287           1.000         0.00         18.7         0.000         0         0.000         19246         82553         18252           1.000         0.00         0.00         0.000         0         0.000         19246         83275         112632           1.1         0.000         0.0         0.000         0         0.000         1914         0.000         0         0.000         19246         82553         112636           1.1         0.000         0.0         0.000         0         0.000         0.000         112636         112636           1.0         0.000         0.0         0.000         0.000         0.000         112636         112636           1.0         0.0         0.0         0.0         0.0         0.000         0.000         112649         112636           1.0         0.0         0.0         0.0         0.0         0.000         0.000         112636         112636         112636     &lt;</td><td>0.000         0.00         46.0      
  0.000         0         0.000         37327         51337         69665           0.000         0.00         15.7         0.000         0         0.000         16.76         16.76         16.76         15.23         16.26         16.26         16.76         16.76         16.76         16.26</td><td>0.000         0.00         46.0         0.000         0.000         37327         51337         89665           0.000         0.00         15.7         0.000         0.000         5501         16786         21287           1.000         0.00         18.7         0.000         0         0.000         19246         83531         20256         51583           1.000         0.000         0.0         0.000         0         0.000         19446         8325         10525         11585           1.1         0.000         0.0         0.000         0         0.000         19446         99143         11585           1.1         0.000         0.0         0.000         0         0.000         19446         99143         11585           1.1         0.000         0.0         0.000         0         0.000         19446         99143         11585         11585           1.1         0.000         0.0         0.000         0.000         0.000         0.000         19494         99143         11485         11485           1.0         0.000         0.0         0.000         0.000         0.000         0.000         0.000         0.000</td><td>0.0000         0.000         0.0000         0.0000         0.0000         37327         51337         68665           0.0000         0.000         15.7         0.000         0.000         6.000         16.76         16.786         21337         68658           0.0000         0.00         16.7         0.000         0         0         0.000         16.786         25236</td><td>0.000         0.00         0.000</td><td>0.000         <th< td=""><td>0.0000         0.0         0.0000         0.0000         37327         51337         68665           0.0000         0.0         15.7         0.0000         0.000         6.000         16.76         16.</td><td>0.000         0.00         0.000</td><td>0.000         0.00         0.000</td><td>0.000         0.0         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000        
0.000         0</td><td>0.000         0.0         0.000         0</td><td>0.000         0.0         0.000         0.0         0.000         0.0</td><td>0.000         0.00         0         0         0.000</td></th<></td></th<> | 0.000         0.0         0.000         0         0.000         57327         51337         63665           0.000         0.000         0.0         0.000         0         0.000         16786         23287           1         0.000         0.0         0.000         0         0.000         35301         20256         55533           1         0.000         0.0         0.000         0         0.000         19246         83275         102520           1         0.000         0.0         0.000         0         0.000         14469         93163         112632           1         0.000         0.0         0.000         0         0.000         19446         95163         116206           1         0.000         0.0         0.000         0         0.000         19446         95163         116206           1         0.000         0.0         0.000         0         0.000         19446         95163         116206           1         0.000         0.0         0.000         0.000         0         0.000         19446         95163         116206           1         0.000         0.0         0.000         0. | 0.000         0.00         46.0         0.000         0         0.000         5137         5135         63665           0.000         0.00         0.00         0.000         0         0.000         1676         21287         21287           1         0.000         0.0         0.000         0         0.000         1676         5553         16250         16253           1         0.000         0.0         0.000         0         0.000         19246         83275         102520         162520           1         0.000         0.0         0.000         0         0.000         19446         98163         112632           1         0.000         0.0         0.000         0         0.000         19914         96292         116206           1         0.000         0.0         0.000         0         0.000         19914         96292         116206           1         0.000         0.0         0.000         0         0.000         19914         96292         116206           1         0.000         0.0         0.000         0         0.000         0         11620         11620         11620         11620         1 | 0.0000         0.00         46.0         0.0000         0.0000         37327         51337         68665           0.0000         0.000         15.7         0.0000         0         0.000         16.786         21287         16.786         21387         21387           1         0.000         0.0         16.9         0.000         0         0.000         19246         81253         102550           1         0.000         0.0         77.8         0.000         0         0.000         14469         93163         112632           1         0.000         0.0         91.7         0.000         0         0.000         14469         93163         112632           1         0.000         0.0         91.4         0.000         0         0.000         14469         93163         112636           1         0.000         0.0         0.000         0         0.000         0.000         110864         93163         110866           1         0.000         0.0         0.000         0         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000 | 0.0000         0.0000< | 0.000         0.00         46.0         0.000         0.000         37327         51337         68665           1.000         0.000         0.00         15.7         0.000         0         0.000         16786         23287           1.000         0.00         18.7         0.000         0         0.000         19246         82553         18252           1.000         0.00         0.00         0.000         0         0.000         19246         83275         112632           1.1         0.000         0.0         0.000         0         0.000         1914         0.000         0         0.000         19246         82553         112636          
1.1         0.000         0.0         0.000         0         0.000         0.000         112636         112636           1.0         0.000         0.0         0.000         0.000         0.000         112636         112636           1.0         0.0         0.0         0.0         0.0         0.000         0.000         112649         112636           1.0         0.0         0.0         0.0         0.0         0.000         0.000         112636         112636         112636     < | 0.000         0.00         46.0         0.000         0         0.000         37327         51337         69665           0.000         0.00         15.7         0.000         0         0.000         16.76         16.76         16.76         15.23         16.26         16.26         16.76         16.76         16.76         16.26 | 0.000         0.00         46.0         0.000         0.000         37327         51337         89665           0.000         0.00         15.7         0.000         0.000         5501         16786         21287           1.000         0.00         18.7         0.000         0         0.000         19246         83531         20256         51583           1.000         0.000         0.0         0.000         0         0.000         19446         8325         10525         11585           1.1         0.000         0.0         0.000         0         0.000         19446         99143         11585           1.1         0.000         0.0         0.000         0         0.000         19446         99143         11585           1.1         0.000         0.0         0.000         0         0.000         19446         99143         11585         11585           1.1         0.000         0.0         0.000         0.000         0.000         0.000         19494         99143         11485         11485           1.0         0.000         0.0         0.000         0.000         0.000         0.000         0.000         0.000 | 0.0000         0.000         0.0000         0.0000         0.0000         37327         51337         68665           0.0000         0.000         15.7         0.000         0.000         6.000         16.76         16.786         21337         68658           0.0000         0.00         16.7         0.000         0         0         0.000         16.786         25236 | 0.000         0.00         0.000 | 0.000         0.000 <th< td=""><td>0.0000         0.0         0.0000         0.0000         37327         51337         68665           0.0000         0.0         15.7         0.0000         0.000         6.000         16.76         16.</td><td>0.000         0.00         0.000</td><td>0.000         0.00         0.000        
0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000         0.000</td><td>0.000         0.0         0.000         0</td><td>0.000         0.0         0.000         0</td><td>0.000         0.0         0.000         0.0         0.000         0.0</td><td>0.000         0.00         0         0         0.000</td></th<> | 0.0000         0.0         0.0000         0.0000         37327         51337         68665           0.0000         0.0         15.7         0.0000         0.000         6.000         16.76         16. | 0.000         0.00         0.000 | 0.000         0.00         0.000 | 0.000         0.0         0.000
        0.000         0.000         0.000         0.000         0.000         0 | 0.000         0.0         0.000         0 | 0.000         0.0         0.000         0.0         0.000         0.0 | 0.000         0.00         0         0         0.000 |

- COCENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURBARY

YEAD . 1990			NA I TURE	NATIONAL SUMMARY							
NO.13 ADVANCED TECHNOLOGY, GAS 1	TURBINE, DIRECT FIRED, COAL DER. BLR GRD	CT FIRED,	COAL DER.B	ILR GRO	50 # # #	*** STRATEGY HEAT PUMP	AT PUMP				07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 B		COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	HISSIOHS TONS PER UTILI	SAVING YEAR ITY	STOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY		9018	•			. 00	23438048	995626 95 990569	ı	33232880	
COST SAVINGS CASES ONLY	0			•		. 0		. 0		•	
ENISSIONS SAVINGS CASE ONLY	•	106		0		•	23438048	7987626 85		33232880	
FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING	00	• •				00		• •	• •	• •	
		HAT	NATIONAL FUEL SAVINGS SUMMARY	. SAVINGS	SUMMARY						
CATEGOPY	NATURAL P	PETROLEUM DISTILLATE		S 10 GAS	10**12 BTU -COAL DERIVED DISTILLATE	BOILER	COAL	OTHER SAVINGS	TOTAL FUEL		
	1			; ; ; ;				1		:	
SITE PLUS UTILITY	0.007	c	6	•	ć	•					
FUEL SAVINGS CASES ONLY		•	9000	•	•		4/661	617		•	
COST SAVINGS CASES ONLY		0		• •		0	• •	0			
EMISSIONS SAVINGS CASE ONLY	14870	0	6082	0	0	0	15579	2197		•	
FUEL & COST SAVINGS CASES	0	0	0	•	0	٥	0	•		0	
FUEL, COST & EMISSION SAVING	0	•	0	•	0	0	•	•		•	
INCLUDING COAL FUEL CONVERSION		•		•	•	•		;			
TOTAL ALL	14870	0	6082	0	o ·	0	15579	2197		0	
FUEL SAVINGS CASES ONLY	•	0	0	0	0	0	0	0		0	
COST SAVINGS CASES CHLY	0	0	0	0	0	0	0	0		0	
ENISSIONS SAVINGS CASE ONLY	14870	0	6082	0	0	•	15579	2197		•	
FUEL & COST SAVINGS CASES	0	0	0	•	0	0	0	0		•	
FUEL, COST & EMISSION SAVING	0	6	0	0	0	0	0	•		•	

0.0000         0.0000         37327         51337         66665         0.000           0.0000         0.0000         6501         16706         23250         0.000           0.0000         0.0000         19346         16706         23528         0.000           0.0000         0.0000         19246         93163         112632         0.000           1.0000         0.0000         19246         93163         112632         0.000           1.0000         0.0000         19246         93163         112632         0.000           1.0000         0.0000         19246         93163         112632         0.000           1.0000         0.0000         12082         74301         117656         0.000           1.0000         0.0000         0.0000         210626         429152         0.000           0.0000         0.0000         0.0000         15943         34273         641504         0.000           0.0000         0.0000         0.0000         0.0000         169456         77526         0.000           0.0000         0.0000         0.0000         0.0000         169456         77526         0.000           0.0000         0.0000<	THOUSTRY SALES SOUTH STATE OF THE STATE OF THE STATE OF THE SALES OF THE SALES OF THE SALES OF THE SALES SAL
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0         0         0         35301         20256         55558         0           0         0         0         19246         53275         112625         0           0         0         0         19246         53275         112625         0           0         0         0         0         14469         93163         112632         0           0         0         0         0         0         19914         95292         116265         0           0         0         0         0         1000         216628         216524         429152         0           0         0         0         0         1000         116184         95292         116266         0           0         0         0         0         1000         12626         25015         0         0           0         0         0         0         0         16149         15926         14569         0         0           0         0         0         0         0         0         16149         15926         17505         0         0           0         0         0         0	0.0
0         0         19246         83275         102520         0           0         0         19468         93163         112632         0           0         0         0         14468         93163         112632         0           0         0         0         0         19914         96292         116205         0           0         0         0         0         43555         74301         117856         0           0         0         0         0         210628         74301         117856         0           0         0         0         0         210628         74301         117856         0           0         0         0         0         12036         74631         117856         0           0         0         0         0         15036         74631         147828         0         0           0         0         0         0         0         161849         74631         147828         0         0           0         0         0         0         0         161445         14596         7536         1008           0	0.000 18.9
0         0         0         14469         99163         112612         0           0         0         0         0         19446         99163         116206         0           0         0         0         0         43555         74301         117656         0           0         0         0         0         210628         74301         117656         0           0         0         0         0         120365         74301         117656         0           0         0         0         0         120365         74361         117656         0         0           0         0         0         0         120365         546819         451342         0         0           0         0         0         0         16149         145965         177265         0         0           0         0         0         0         0         16149         14596         14060         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	0.000 0.00 77.8
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0000         0         0         104155         7532         111687         0         0           0000         0         0         0         780461         16628         797068         0         0           0000         0         0         2670494         313958         2984452         0         0           0000         0         0         0         37757         59693         97450         0         0           0000         0         0         0         4342768         521814         4664562         0         0           0000         0         0         0         56215         79350         135605         0         0           0000         0         0         0         56215         79350         135605         0         0         0           0000         0         0         0         59750         100465         11623739         0         0           0 </td <td>0.000 0.0 20.7</td>	0.000 0.0 20.7
0000         0         0         780461         16628         797068         0         0           0000         0         0         0         2670494         313958         2984452         0         0           0000         0         0         0         37757         59693         97450         0         0           0000         0         0         0         4342768         521814         4864562         0         0         0           0000         0         0         0         56215         79350         135665         0         <	0.000 0.00 7.0
000         0         0.000         2670494         313958         2984452         0.00           000         0         0         37757         59693         97450         0.00           000         0         0         4342768         521814         4864562         0.00           000         0         0         0         4342768         521814         4864562         0.00           000         0         0         0         56215         79350         142496         0.00           000         0         0         0         54050         68446         142496         0.00           000         0         0         0         0         100465         160215         0.00           0         0         0         0         0         0         0         0         0         0           0 <td>0.000 0.0 16.2</td>	0.000 0.0 16.2
0000         0         0         0         4342768         551814         4664562         0         0           0000         0         0         0         4342768         521814         4664562         0         0           0000         0         0         0         56215         79350         135605         0         0           0000         0         0         0         56215         79350         142496         0         0         0           0000         0         0         0         0         59750         160245         160215         0         0           0	0.000 0.0 293.3
.000         0         0.000         4342768         521814         4664562         0.00           .000         0         0.000         56215         79350         135605         0.00           .000         0         0.000         54050         86446         142496         0.00           .000         0         0         0.000         59750         100465         160215         0.00           .000         0         0         0         0         0         0         0         0           .000         0	0.000 0.0 55.8
0.000 0 0 0.000 54050 86446 142494 0.000 0.000 0 0.000 54050 100465 160215 0.000 0.000 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000 0.0 487.4
.000 0 0.000 54050 86446 142496 0.000 .000 0 0.000 59750 100465 160215 0.000 .000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000 0.00 74.2
00.00 0 0.000 59750 100465 160215 0.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000 0.0 82.6
0 6802 <b>691</b> 2620644 11623739 0 0 0 0 0 0 0 0 0 8802691 2620844 11623739 0 0 0 0	0.000 0.0 93.8
0 0 0 0 0 0 0 0 0 8802891 2820844 11623739 0 0 0	393
0 8802891 2820844 11623739 0 0 0 0 0	o o
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- CCSENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURBARY

				<b>.</b>	1	ייי לוויטורטו וורטו במוב					5
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT	COST 8	AVINGS DOLLARS \$000	CAPITAL S COST \$000		PLANT	MISS TONS	IONS SAVIN Per Year Utzlity	65 TOTAL	
		!	;		1	;			!		
TOTAL ALL	G	9018			a	6	27438048		9794864	11212860	
EL SAVINGS CASES ONLY		0				• •				0	
COST SAVINGS CASES ONLY	0	0				•		•	•	•	
ENISSIONS SAVINGS CASE DULY	0	9018			0	•	23438048		9794864	33232880	
FUEL & COST SAVINGS CASES	0	0			0	0		0	0	•	
FUEL, COST & EMISSION SAVING	0	•			0	0		•	0	•	
		HATI	HATIOHAL FUEL SAVINGS SUMMARY	SAVINGS	S SURMARY						
	# # # # # # # # # # # # # # # # # # #	Ξ	FUEL SAVINGS	-	10**12 BTU		•				
CATEGORY	NATURAL PETROLEUN GAS DISTILLATE	LATE	PETROLEUN PETROLEUN DISTILLATE BOILER FUEL	GAS	COAL DERIVED DISTILLATE BOILER FUEL	BOTLER FUEL	COAL FUEL	OTHER Savings	TOTAL FUEL S	ر.	
		1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			!		<b>!</b>	
SITE PLUS UTILITY											
TOTAL ALL	14870	0	6082	Ĭ		0	15579	2197		0	
FUEL SAVINGS CASES ONLY	0	0	0	Ī		0	•	0		Ú	
COST SAVINGS CASES CALY	0	0	0	_	0	•	0	0		•	
ENISSIONS SAVINGS CASE ONLY	14970	0	6082	Ŭ		0	15579	2197		•	
FUEL & COST SAVINGS CASES	0	0	0		0	0	0	0		•	
FUEL, COST & EMISSION SAVING	0	•	0			•	•	٥		•	
INCLUDING COAL FUEL CONVERSION											
TOTAL ALL	14870	0	6082	Ī	0	0	15579	2197		•	
FUEL SAVINGS CASES ONLY	0	0	0	_		0	0	0		•	
COST SAVINGS CASES ONLY	0	0	•	Ŭ		•	0	•		0	
ENISSIONS SAVINGS CASE ONLY	14570	0	6082	Ĭ	<u>.</u>	0	15579	2197		0	
FUEL & COST SAVINGS CASES	0	0	0	Ĭ		•	•	•		0	
ENTYES MOISSING & 1800, 1909	•	•	•	•		•	•				

01 ECS SIZE (194)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.93	0.00	0.00	0.00	10.19	
INGS  TOTAL	90992	23287	55558	102520	112632	116206	117856	429152	134528	661204	15638	177205	73508	107861	14519	28001	111687	797088	2984452	37345	4864582	135605	142496	63460	
ENISSIGNS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83275	99163	96292	10252	218524	76864	619055	34273	159056	57565	78782	4463	22168	7532	16628	313958	59693	521814	79390	9558	100465	2820844 194431 194431 2626414 194431
PUMP ENTS TONS PLANT	37327	1059	35301	19246	14469	71661	43555	210628	57664	120385	-18636	16149	15943	29379	10056	5833	104155	780461	2670494	-22348	4342768	56215	54050	-37006	8574201 -77989 -77989 8652191 -77989
*** STRATEGY HEAT PITAL EHISSIONS COST SAVINGS \$000 RATIO	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.179	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.303	0.000	0.000	0.000	0.396	
*** STRA CAPITAL COST \$000	0	•	0	0	•	•	0	•	•	•	473814	0	•	•	•	•	0	0	•	1084751	0	•	•	1722453	3281017 3281017 3281017 3281017
SAVINGS DOLLARS \$000	•	0	0	•	•	•	0	0	0	•	55709	•	0	•	•	o	0	0	•	72502	0	0	0	97152	225363 225363 225363 225363 225363
	0.000	0.000	0.000	0.000	000.0	0.000	0.000	0.000	0.000	0.000	0.126	0.000	0.000	0.000	0.000	0.000	0.000	0.000	000.0	0.179	0.000	0.000	0.000	0.128	1
T FIRED,CC UTILITY FUEL SAVINGS	48.0	15.7	18.9	77.8	7.16	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	4.87.4	74.2	95.6	93.8	2623 162 182 2441 182
OCCSS LEVEL TURBINE, DIRECT FIRED, COAL(PFB) RSY TOTAL UTILITY COST S FUEL FUEL i SAVINGS SAVINGS RATIO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5	0.0	0.0	0.0	40.9	71 71 71 71 0
	0.000	0.000	0.000	0.000	0.000	000.0	000.0	0.000	0.000	000.0	0.056	0.000	000.0	000.0	000.0	0.000	0.000	0.000	0.000	0.215	0.00.0	0.003	0.000	0.196	
CTAS GENERAL SUKUAPY - PR NO.15 ADVANCED TECHNOLOGY,GAS FUEL ENE TROUSTRY SAVING RATIO	HO.01 REAT PACKING	NO.02 BAKINS	HO.03 HALT BEVERAGE	ND.04 WOVEN FABRIC MILL	NO.05 SAW MILL	HO.05 NEWSPRINT HILL	NO.07 KRITING PAPER HILL	HO.08 CORRUGATED PAPER	NO.09 COX COARD	HO.10 CHLCRIHE	NO.11 ALUMINA	MO. 12 LOW DENS. POLYETHYL	HO.13 HI DENS. POLYETHYL	HO.14 FOLYVINYL CHLORIDE	NO.15 STYRENE-BUT. RUB.	HO.16 NYLON	HO.17 STYPENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	MO.23 INTEGRATED STEEL	HO.24 GRAY IPON FOUNDRY	HO.25 COPPER	NO.26 NOTOR VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CALY ENISSIONS SAVINGS CASE ONLY FUEL 1 COST SAVINGS CASES FUEL, COST 2 EMISSION SAVING

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURMARY

NO.15 ADVANCED TECHNOLOGY, GAS	TUREINE, DIRECT FIRED, COAL( PFB)	T FIRED,C	OAL(PFB)		*** STRATEGY HEAT PUMP	LEGY HE	AT PUMP				•
CATEGORY	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BTU	C05T S	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	ENISSIONS SAVINGS TONS PER YEAR IT UTILITY I	SAVIN YEAR ITY	55  TOTAL	
		# # # # # # # # # # # # # # # # # # #		i				1	i		
TOTAL ALL	198	9018		934993	10777853		22366112	•		32160976	
FUEL SAVINGS CASES ONLY	153	<b>5</b> 59		934998	10777853		-316904		668943	372036	
COST SAVINGS CASES UNLY	193	44.9		934598	10777853		-316904		688943	372036	
ENISSIONS SAVINGS CASE ONLY	•	8375		•	0		22683024	-	9105924	31788960	
FUEL & COST SAVINGS CASES	198	559		934998	10777853		-316904		666943	372038	
FUEL, COST & EMISSION SAVING	0	0		0	•			•	•	•	
		MATI	NATIONAL FUEL SAVINGS SURMARY	SAVINGS S	UNISKRY						
	1		FUEL SAVINGS		10**12 BTU		į				
CATEGORY	NATURAL PE GAS DI	PETROLEUM DISTILLATE	PETROLEUM BOILER FUEL	6AS	<u> </u>	 BOILER FUEL	COAL	OTHER SAVINGS	TOTAL FUEL		
										i	
SITE PLUS UTILITY											
TOTAL ALL	14813	-408	6082	0	•	•	14432	2197		961	
FUEL SAVINGS CASES ONLY	533	-403	494	•	•	•	-422	56		198	
COST SAVINGS CASES CHLY	513	-408	<b>494</b>	0	0	0	-425	<b>5</b> 8		198	
CHISSIONS SAVINGS CASE ONLY	14275	0	5618	0	0	•	14654	2171		•	
FUEL 1 COST SAVINGS CASES	538	-408	494	0	0	0	-455	<b>56</b>		196	
FUEL, COST & EMISSICH SAVING	•	0	•	•	•	0	•	•		•	
INCLUDING COAL FUEL CCHVERSION											
TOTAL ALL	14815	-408	6082	0	•	0	14432	2197		198	
FUEL SAVINGS CASES ONLY	533	-408	<b>†9</b> †	0	•	0	-422	56		198	
COST SAVINGS CASES CHLY	538	-408	595	•	•	•	-422	92		198	
ENISSIONS SAVINGS CASE ONLY	14275	0	5618	0	0	0	14854	2171		•	
FUEL & COST SAVINGS CASES	533	-408	494	0	•	0	-422	<b>50</b>		198	
FUEL, COST & EMISSION SAVING	0	0	0	0	0	٥	0	0		•	

							15.7       0.000       0         18.9       0.000       0         77.8       0.000       0         91.7       0.000       0         91.4       0.000       0         59.1       0.000       0         72.5       0.000       0         499.1       0.000       0         1446.6       0.000       0         53.7       0.000       0         4.2       0.000       0         4.2       0.000       0         20.7       0.000       0
N F						18.9 0.000 77.8 0.000 91.7 0.000 91.7 0.000 59.1 0.000 72.5 0.000 499.1 0.000 148.6 0.000 53.7 0.000 73.7 0.000 73.7 0.000 73.7 0.000	0.0 18.9 0.000 0.0 77.8 0.000 0.0 91.7 0.000 0.0 91.7 0.000 0.0 59.1 0.000 0.0 205.4 0.000 0.0 72.5 0.000 0.0 32.0 0.000 0.0 32.0 0.000 0.0 53.7 0.000 0.0 53.7 0.000 0.0 73.7 0.000
· N						77.8 0.000 91.7 0.000 59.1 0.000 205.4 0.000 72.5 0.000 499.1 0.000 148.6 0.000 53.7 0.000 73.7 0.000 4.2 0.000 7.0 0.000	0.0 77.8 0.000 0.0 91.7 0.000 0.0 91.4 0.000 0.0 205.4 0.000 0.0 72.5 0.000 0.0 32.0 0.000 0.0 53.7 0.000 0.0 53.7 0.000 0.0 73.7 0.000
· N M	•					91.4 0.000 205.4 0.000 72.5 0.000 499.1 0.000 148.6 0.000 53.7 0.000 73.7 0.000 4.2 0.000 7.0 0.000	0.0 91.4 0.000 0.0 205.4 0.000 0.0 72.5 0.000 0.0 499.1 0.000 0.0 32.0 0.000 0.0 148.6 0.000 0.0 53.7 0.000 0.0 73.7 0.000
N M						59.1 0.000 205.4 0.000 72.5 0.000 32.0 0.000 148.6 0.000 53.7 0.000 73.7 0.000 4.2 0.000 7.0 0.000	0.0 205.4 0.000 0.0 72.5 0.000 0.0 72.5 0.000 0.0 32.0 0.000 0.0 148.6 0.000 0.0 53.7 0.000 0.0 73.7 0.000
2						205.4 0.000 72.5 0.000 499.1 0.000 148.6 0.000 53.7 0.000 73.7 0.000 4.2 0.000 7.0 0.000	0.0 205.4 0.000 0.0 72.5 0.000 0.0 499.1 0.000 0.0 32.0 0.000 0.0 148.6 0.000 0.0 53.7 0.000 0.0 73.7 0.000
						72.5 0.000 499.1 0.000 32.0 0.000 148.6 0.000 53.7 0.000 73.7 0.000 4.2 0.000 7.0 0.000	0.0 72.5 0.000 0.0 499.1 0.000 0.0 32.0 0.000 0.0 148.6 0.000 0.0 53.7 0.000 0.0 73.7 0.000 0.0 4.2 0.000
•				0000		32.0 0.000 148.6 0.000 53.7 0.000 73.7 0.000 4.2 0.000 7.0 0.000	0.0 499.1 0.000 0.0 32.0 0.000 0.0 148.6 0.000 0.0 53.7 0.000 0.0 73.7 0.000 0.0 4.2 0.000
•				000000000000000000000000000000000000000	32.0 0.000 48.6 0.000 53.7 0.000 4.2 0.000 20.7 0.000	32.0 0.000 148.6 0.000 53.7 0.000 73.7 0.000 4.2 0.000 20.7 0.000 7.0 0.000	0.0 32.0 0.000 0.0 140.6 0.000 0.0 53.7 0.000 0.0 73.7 0.000 0.0 4.2 0.000
•				000. 000. 000.	48.6 0.000 53.7 0.000 73.7 0.000 4.2 0.000 20.7 0.000	148.6       0.000         53.7       0.000         73.7       0.000         4.2       0.000         20.7       0.000         7.0       0.000	0.0 140.6 0.000 0.0 53.7 0.000 0.0 73.7 0.000 0.0 4.2 0.000 0.0 20.7 0.000
•			• • • •	0000	0.000.000.000.0000.0000.00000.00000.0000	53.7 0.000 73.7 0.000 4.2 0.000 20.7 0.000 7.0 0.000	0.0 53.7 0.000 0.0 73.7 0.000 0.0 4.2 0.000 0.0 20.7 0.000
2 -				0.000.0		73.7 4.2 20.7	0.0 73.7 0.0 4.2 0.0 20.7
- ;			<b></b>	0.000.0	6.2	4.2 20.7 7.0	0.0 4.2
:			•	0.000	0.7	20.7	0.0 20.7
			•			7.0	
0.000 104155			0	0 000 0			7.0
0.000 780461	•		•	0.000	16.2 0.000 0	•	16.2 0
0.000 2670494			•	0 000 0	293.3 0.000 0	•	293.3 0
0.000 37757	0		0	0 000 0	000	0.00	55.8 0.000
0.000 4342768	0		0	0.000	000.	0.00	00 697.4 0.000
0.000 56215	•		0	0 000 0	. 000	0.000.0	.0 74.2 0.000
0.000 54050	•		•	0 000 0	. 000	000.0 9.	.0 62.6 0.000
0.000 59750	0		0	0 000 0	.000	.8 0.000	000.0 93.8 0.000
6802891	. 0	1	0	0	2623		2623
•	0 (		•	0 (		0	0
6802891			• •	• •	2623 0	o m	2623
• •	0 0		<b>0</b> G	0 9	0.0	0 0	00

01 ECS - SIZE AL (1947)	60665 0.00	10670 0.17*	55558 0.00	05520 0.00	112632 0.00	116206 0.00	50043 21.43	29152 0.00	34528 0.00	661204 0.00	15857 20.95	77205 0.00	73508 0.00	47542 7.13	14519 0.00	28001 0.00	111687 0.00	797068 0.00	207455 28.59	36921 7.93	4864582 0.00	135605 0.00	54042 6.23	61651 11.45	8387034 454360 396062 7935657
ENISSIONS CAVINGS TONS PER YEAR UTILITY TOTAL	51337 60	16766 11	50256 5	63275 100	98163 113	96292 110	74301 50	218524 429	76864 134	540619 661	34273 19	159056 177	57565 73	78762 47	4463 10	22.166 28	7532 111	16628 797	313956 207	59693	521814 4864	79390 139	95,68	100465 61	3 2 2 3
ENISSI TOUS F PLANT UT	37327	-5916	35301	19246	14469	19914	-24258	210628	57664	120305	-10416	16149	15943	-31240	10056	5833	104155	766461	-106503	-22772	4342768	56215	-34405	-36614	185 325 178 512
*** SIKAIEGI MEAI PITAL EMISSIONS COST SAVINGS \$000 RATIO	0.000	195.0	0.000	0.000	0.000	0.00	0.405	000.0	0.000	000.	0.181	. 600	0.000	0.441	0.00	0.000	0.000	0.000	0.070	0.379	0.000	0.000	0.379	0.335	i
CAPITAL COST \$000	•	643582	•	•	•	•	736788	•	•	•	373720	•	•	616969	•	•	•	0	4739154	770465	•	•	994247	1268832	10224004 10224004 7937572
SAVINGS DOLLARS \$000	•	-51473	•	•	•	•	58513	•	0	•	-11405	•	•	35168	•	•	•	0	126259	10211	0	0	82153	-13276	179126 179126 255279
COST RATIO	0.000	-0.360	0.000	0.000	000.0	000.0	0.120	000.0	0.000	000.0	-0.026	0.000	000.0	0.033	0.000	0.000	0.000	0.000	0.009	0.025	0.00.0	0.000	0.043	-0.018	
	48.0	15.7	18.9	77.8	91.7	4.19	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.5	20.7	7.0	16.2	293.3	\$5.8	487.4	74.2	82.6	93.8	700
TOTAL FUEL SAVINGS	0.0	7.7	9.0	0.0	0.0	0.0	31.5	0.0	0.0	0.0	7.9	0.0	0.0	31.5	0.0	0.0	9.0	9.0	243.3	25.5	0.0	0.0	37.0	42.5	80 A A B C A
	0.000	0.193	000.0	0.000	000.0	0.000	0.283	000.0	0000.0	000.0	0.071	000.0	000.0	0.274	000.0	0.000	0.000	000.0	0.060	0.233	0.000	0.000	0.235	÷00°0	
NO.17 AUVARLED TEURINDLOFT, DAS FUEL ENE TICOUSTRY SAVING RATIO	HO. 01 MEAT PACKING	RO. 02 BEKING	HO. 03 MALT BEVERAGE	NJ.04 WOVEN FRERIC MILL	NO.05 SAW MILL	HO.06 HEUSPRINT MILL	HO. 07 KPITING PAPER HILL	NO.09 CGRRUGATED PAPER	HO.09 BOX BOAND	1.0.10 CHLORINE	RO. 11 ALUMINA	NO.12 LOW DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	HO.14 FOLYVINYL CHLOPIDE	RD.15 STYPENE-EUT. FUB.	ED. 15 PYLON	1:0.17 STIPENE	NO. 18 ETHYLENE	HO.19 PETFOLEUN REFINING	NO.20 TIRES	HO.23 INTECPATED STEEL	HO.24 GPAY IFON FOUNDRY	NO.25 COPPER	HO.26 MOTOR VEHICLE	ALL SS CASES CALY SS CASES CALY SAVENCE CASE

- COGEREPATION TECHNOLOGY ALTERNATIVES STUDY -

NO.17 ADVANCED TECHNOLOSY,GAS TURBINE,CLOSED CYCLE, COAL DER. B.G	TUFF INE CLOS	ED CYCLE.	COAL DER.	0	ANN STR	*** STRATEGY HEAT PUMP	AT PURP			
	TOTAL	UTILITY	COST	COST SAVINGS	CAPITAL			ENISSIONS SAVINGS	SAVIII	92
CATEGORY	FUEL SAVINGS	FUEL		5000 \$000	CC5T		PLANT	PLANT UTILITY	YEAR ITY	TOTAL
	1012 6TU 16-412 BTU	10**12 B								
TOTAL ALL	1402	8105		1117063	34778256		15538867	979 679	•	25333728
FUEL SAVINGS CASES CHLY	1402	2640		1117063	34778256		-1116929		2989743	1872616
COST SAVINGS CASES ONLY	1224			1359339	27239824		-840377		2409933	1569509
ENISSIONS SAVINGS CASE ONLY	•	6379		•	•		16655790	Ī	6605127	23460928
FULL & COST SAVINGS CASES	1224			1359339	27239824		-840377		2409883	1569509
FUEL, COUT & ENISSION SAVING	•	0		•	•			•	•	
		F1	FUEL SAVINGS	;	10**12 BTU		;		14701	
CATEGORY	645 0	DISTILLATE	EOILER FUEL	645		BOTLER	COAL	OTHER SAVINGS		
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				:			; ; ;	:
SITE PLUS UTILITY	1		•	•	,				•	:
TOTAL ALL	14764	-438	6032	•	•	-10363	15579	2197	<b>-</b>	2051
FUEL SAYINGS CASES CHLY	97.74	-403	5644	0	•	-10363	3365	368	<u> </u>	1402
CCST SAVINGS CASES CHLY	4314	•	2216	0	•	0016-	2770	1332	-	9221
ENISSIONS SAVINGS CASE ONLY	6865	•	3+39	•	•	0	12214	629		•
FUEL & COST SAVINGS CASES	4314	•	2216	•	•	-9403	2770	1332	~	1224
FUEL, COST & EMISSION SAVING	0	0	•	0	a	?	•	•		0
INCLIDING COAL FUEL CONVERSION										
TOTAL ALL	6906	•	3433	•	•	•	10820	2197		-25
FUEL SAVINGS CASES ONLY	0	0	0	0	0	•	-1393	1368		-25
COST SAVINGS CASES CHLY	0	•	0	٥	•	۰	-1341	1332		6-
ENTSELONS SAVINGS CASE CHLY	6856	٥	3435	0	•	•	12214	629		•
FUEL & COST SAVINGS CASES	•	٥	•	•	0	•	-1341	1332		۴
SHIATS ROISSING T ISSUE BANK	•	0	•	•	0	•	•	•		0

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EMASSIONS SAVIDIGS ECS TONS PER YEAR SAZE UTILITY TOTAL (FILL)	27 51337 8865 0.00	01 (46786 23287 0.00		98 20256 9766 1.91*	20236 97@8 1 83275 102520 0	20256 9746 1 63275 102520 0 98163 112632 0	20236 9746 1 83275 102520 0 98163 112632 0	20256 9746 1 63275 102520 0 98163 112632 0 9624 116206 0	20256 9746 1 63275 102520 0 98163 112632 0 9624 116206 0 74301 43022 20 216524 429152 0	20256 9746 1 63275 102520 0 96163 112632 0 962 116206 0 74301 43022 20 216524 429152 0 76864 134528 0	20256 9746 1 63275 102520 0 98163 112632 0 9624 116206 0 74301 43022 20 210524 429152 0 76864 134528 0	20256 9746 1 63275 102520 0 96163 112632 0 9624 116206 0 74301 43022 20 210524 429152 0 76864 134528 0 540419 661204 0	20256 9746 1 83275 102520 0 98163 112632 0 9624 116206 0 74301 43022 20 218524 429152 0 76864 134528 0 540419 661204 0 34273 8425 19	20256 9746 1 63275 102520 0 98163 112632 0 9624 13626 0 74301 43022 20 210524 429152 0 76864 134528 0 540419 661204 0 34273 8425 19 159056 177205 0	20256 9746 1 63275 102520 0 98163 112632 0 9624 116206 0 74301 43022 20 210524 429152 0 76864 134528 0 540419 661204 0 34273 8425 19 159056 177205 0 57565 16294 10	20256 9746 1 63275 102520 0 98163 112632 0 9624 116206 0 74301 43022 20 218524 429152 0 76864 134528 0 540419 661204 0 34273 8425 19 159056 177205 0 57565 16294 10	20256 9746 1 63275 102520 0 98163 112632 0 9624 116206 0 74301 43022 20 216524 429152 0 76864 134528 0 540419 661204 0 34273 8425 19 159056 177205 0 57565 16294 10 78762 26760 7 4463 28001 0	20256 9746 1 63275 102520 0 98163 112632 0 962	20256 63275 102520 98163 112632 9625 116206 74301 43022 210524 429152 76864 134528 540619 661204 34273 8425 1 159056 177205 57565 16294 1 78762 22168 22168 22168 797088	20256 9766 63275 102520 96163 112632 962 116206 74301 43022 2 216524 429152 76864 134528 540619 661204 34273 8425 1 159056 177205 57565 16294 1 78762 26760 4463 2368 22168 28001 7532 111687 16628 797088	20256 9746 63275 102520 98163 112632 9624 116206 74301 43022 2 216524 429152 76864 134528 540419 661204 34273 8425 1 159056 177205 57565 16294 1 78762 26760 4463 2368 22168 28001 7532 111687 16628 95438 2 59693 21189	20256 9746 63275 102520 98163 112632 9624 116206 74301 43022 2 210524 429152 76864 134528 540419 661204 34273 8425 1 159056 177205 57565 16294 1 78762 26760 4463 2368 22168 28001 7532 111687 16628 797088 313958 95438 2 59693 21169	20256 9766 63275 102520 96163 112632 962	20256 9746 63275 102520 98163 112632 9624 112632 218524 429152 218524 429152 218524 134528 540419 661204 34273 8425 1 159056 177205 54643 2368 22168 28001 7532 1111687 16628 797088 313958 95438 2 59693 21189 521814 4864582 79390 135605	20256 9766 63275 102520 96163 112632 962 112632 962 116206 74301 43022 2 216524 429152 76864 134528 540619 661204 34273 8425 1 159056 177205 57565 16294 1 78762 26760 4463 2368 22168 28001 7532 111687 16628 797088 313958 95438 2 59693 21189 521814 4864582 79390 135605 86446 32262
*** STRATÉGY HEÑY PUMP © PMSS PITAL ENISSIONS PMSS COST SAUNGS TONS \$000 RATIO PLANT (	.000 37827	000 6501	.176 -10488		.000 19246			<del>-</del> 7	1 04	1 ~		1 & - 1	1 % 1	1 2 1 1	1 64 1 1 1	1 2 1 1 1	1 & - 1 1 1	1 2 - 1 1 1 -		1 2 1 1 1 2 2		1 1 1 2 - 2 - 43 - 43 - 43	1 2 1 1 1 1 7 2 1 5	1 2 1 1 1 2 1	
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•		•	2 94632	0	•		•	98	9 0 0	98	<b>2</b>	,				12 12 12 12 12 12 12 12 12 12 12 12 12 1				86 66 66 101 15 720	96 52 98 101 101 72C	96 66 101 101 121	66 66 66 72 72 72 72 72 72 72	96 66 52 1101 1121 1126	96 66 101 101 150 150 150
•	0	•	<b>9</b> 182	0		0	o	0 0 152329	0 152329	0 152329 0	152329	0 152329 0 0 0 0 38695	152329 0 0 0 36695	152329 0 162329 0 36698 36698	152329 152329 0 0 38695 24430	152329 152329 0 0 36695 26430 53110	152329 152329 38698 0 24430 53110	152329 152329 0 38695 24430 53110 9324	152329 152329 0 38695 24430 53110 9324	152329 152329 38695 24430 53110 0	152329 152329 36695 26430 53110 9324 9324 0	152329 152329 36695 24430 53110 9324 33504	152329 162329 38695 24430 53110 9324 9324 5325145 0	152329 152329 36695 36695 53110 6 53110 6 67445	0 152329 136695 0 24430 0 53110 9324 532514 5346 5346 55348
RATIO	000.0	0.000	0.035	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000 0.000 0.000 0.000 0.000	0.000 0.311 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000 0.000	0.000 0.311 0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000 0.000 0.037 0.126	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.126 0.126	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.129 0.000	0.000 0.000 0.000 0.000 0.000 0.000 0.126 0.126 0.000 0.000	0.000 0.000 0.000 0.000 0.000 0.000 0.126 0.126 0.000 0.000	0.000 0.000 0.000 0.000 0.000 0.037 0.126 0.129 0.000 0.000	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
UTILITY FUEL SAVINGS	48.0	15.7	1.9	77.8		7.16	91.7	91.7	91.7 91.4 59.1	91.7 91.4 59.1 205.4 72.5	91.7 91.4 59.1 205.4 72.5	91.7 91.4 59.1 205.4 72.5 499.1	91.7 91.4 59.1 205.4 72.5 499.1 32.0	91.7 91.4 59.1 205.4 72.5 499.1 32.0 146.6	91.7 91.4 59.1 205.4 72.5 499.1 32.0 146.6 53.7	91.7 91.4 59.1 205.4 72.5 499.1 148.6 53.7 73.7	91.7 91.4 59.1 205.4 72.5 499.1 32.0 148.6 53.7 73.7 73.7	91.7 91.4 59.1 205.4 72.5 499.1 148.6 53.7 73.7 4.2 00.7	91.7 91.4 59.1 205.4 72.5 499.1 32.0 146.6 53.7 73.7 4.2 60.7	91.7 91.4 59.1 205.4 72.5 499.1 148.6 53.7 73.7 73.7 60.7 10.2	2 2 3 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	2 2 3 3 3 5 4 3 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	74 7 2 2 3 3 4 3 5 6 6 6 6 6 6 7 7 8 8 7 8 7 8 7 8 7 8 7 8	5999 5999 5999 5999 5999 5999 5999 599	73 32 55 59 11 10 10 10 10 10 10 10 10 10 10 10 10
TREST TOTAL UTILITY COST TS FUEL FUEL **	0.0	0.0	8.0	0.0	0.0		0 · 0	0.0	26.5	26.5 0.0 0.0	0.0 0.0 0.0	0 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0 0.0 0.0 0.0	0.0000000000000000000000000000000000000	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0000000000000000000000000000000000000	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	26.55 0.00 0.00 0.00 0.00 0.00 0.00 0.00	26.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	26.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	26.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	26.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0
16 FGY 55 0 SA	•00	000	.112	000	000		000	.238																	
FUEL LNEFGY SAVINGS PATIO	0.0	0.0	ú.1	0.0	0.0	0.0		1 0.2																	
INDUSTRY SAVIR	NO.01 HEAT PACKING	HO. OZ BAKINS	NO.63 MALT BEVERAGE	HO.04 HOVEN FABRIC HILL	RO.05 SAU MILL	HO.06 HEUSPRINT MILL		NO.07 ERITING PAPER NILL	NO.07 LIRITING PAPER HILI NO.03 CORRUSATED PAPER	NO.07 ERITHG PAPER HILL NO.03 CORRUSATED PAPER NO.09 BOX BOARD	NO.07 ERITHG PAPER HILL NO.03 CORRUSATED PAPER NO.09 BOX BOARD NO.10 CHLORINE	PITING PAPER MILI ORRUSATED PAPER OX BOARD HLORINE	NO.07 FRITING PAPER HILL NO.03 CORRUSATED PAPER HO.09 BOX BOARD HO.10 CHLORINE HO.11 ALUMINA HO.12 LOW DENS. POLYETHYL	NO.07 ERITHG PAPER NILL NO.03 CORRUSATED PAPER NO.09 BOX BOARD NO.10 CHLORINE NO.11 ALUMINA NO.12 LOW DENS. POLYETHY NO.13 HI DENS. POLYETHYL	NO.07 ERITHS PAPER HILL NO.03 CORRUSATED PAPER HO.09 BOX BOARD HO.10 CHLORINE HO.11 ALUMINA HO.12 LOW DENS, POLYETHY NO.13 HI DENS, POLYETHYL NO.14 POLYVINYL CHLORIDE	CORRUSATED PAPER HILL CORRUSATED PAPER BOX BOARD CHLORINE ALUHINA LOW DENS. POLYETHY HI DENS. POLYETHY FOLYVINYL CHLORIDE STYRENE-BUT. RUB.	PITING PAPER MILLI DRRUSATED PAPER OX BOARD HLORINE LUMINA OW DENS. POLYETHY I DENS. POLYETHY OLYVINYL CALORIDI TYRENE-EUT. RUB.	PITING PAPER MILLI DRRUGATED PAPER OX BOARD HLORINE LUMINA DW DENS. POLYETHY I DENS. POLYETHY OLYVINYL CHLORIDI TYRENE-EUT. RUB. YLORI	NO.07 ERITHG PAPER HILL NO.03 CORRUSATED PAPER HO.09 BOX BOARD HO.10 CHLORINE HO.11 ALUNINA HO.12 LOW DENS. POLYETHY HO.13 HI DENS. POLYETHY HO.13 STYRENE-EUT. RUB. KO.14 HYLON HO.15 STYRENE	CORRUSATED PAPER NILL CORRUSATED PAPER BOX BOARD CHLORINE ALUMINA LOW DENS. POLYETHY HI DENS. POLYETHYL POLYVINYL CHLORIDE STYRENE-EUT. RUB. HYLON STYRENE ETHYLENE PETROLEUR REFINING	PITING PAPER HILL DRRUGATED PAPER DX BOARD HLORINE LUMINA DW DENS. POLYETHYI I DENS. POLYETHYI OLYVINYL CHLORIDI TYRENE-EUT. RUB. TYRENE TYRENE ETROLEUN REFININK IRES	NO.07 ERITING PAPER HILL NO.03 CORRUSATED PAPER HO.09 BOX BOARD HO.10 CHLORINE HO.11 ALUMINA HO.12 LOW DENS. POLYETHY HO.13 HI DENS. POLYETHY HO.13 HI DENS. POLYETHY HO.14 FOLYUMYL CHLORIDE HO.15 STYRENE-EUT. RUB. HO.16 HYLON HO.16 STYRENE HO.17 STYRENE HO.18 THYLENE HO.19 PETROLEUM REFINING HO.23 INTEGRATED STEEL	NO.07 ERITHG PAPER HILL NO.03 CORRUSATED PAPER HO.09 BOX BOARD HO.10 CHLORINE HO.11 ALUNINA HO.12 LOW DENS. POLYETHY RO.13 HI DENS. POLYETHY RO.13 HI DENS. POLYETHY RO.14 FOLYVINYL CHLORIDE HO.15 STYRENE-EUT. RUB. HO.15 STYRENE HO.15 STYRENE HO.16 THYLENE HO.10 FTROLEUM REFINING HO.20 TIRES HO.23 INTEGRATED STEEL HO.23 STATEGRATED STEEL	PITING PAPER HILLI DRRUSATED PAPER DX BOARD HLORINE LUMINA OW DENS. POLYETHY I DENS. POLYETHY I DENS. POLYETHY I TYRENE-EUT. RUB. TYRENE TYRENE ETROLEUR REFININK IRES HTEGRATED STEEL RAY IFON FGUNDRY OFPER	NO.07 ERITHG PAPER HILL NO.03 CORRUSATED PAPER NO.09 BOX BOARD NO.10 CHLORINE HO.11 ALUMINA HO.12 LOW DEHS. POLYETHY HO.13 HI DEHS. POLYETHY HO.13 HI DEHS. POLYETHY HO.15 STYRENE-EUT. RUB. HO.15 STYRENE-EUT. RUB. HO.16 HYLON HO.16 STYRENE HO.23 INTEGRATED STEEL HO.23 INTEGRATED STEEL HO.24 GRAY IFON FOUNDRY HO.25 COPPER
ت د	표	02 B3	03 HA	CH +0.	.05 SA	1.06 ME	). 07 ER		J. 09 CO	0.03 CO	0.03 CO 0.09 BO 0.10 CH	NO.03 CORRUSA HO.09 BOX BOAI HO.10 CHLORIM HO.11 ALUHIMA	0.03 CO 0.09 BO 0.10 CH 0.11 AL	0.03 CO 0.09 BO 0.10 CH 0.11 AL 0.12 LG	0.03 CO 0.09 BO 0.10 CH 0.11 AL 0.12 LC 0.13 HI	0.03 CO 0.09 BO 0.10 CH 0.11 AL 0.12 LO 0.13 HI 0.14 PO	5.03 CO 5.09 BO 5.10 CH 5.11 AL 5.12 LO 5.13 HI 5.14 PO 5.15 ST	0.03 CO 0.09 BO 0.10 CH 0.11 AL 0.12 LO 0.13 HI 0.15 ST 0.16 HY 0.17 ST	0.03 CO 0.09 BO 0.10 CH 0.11 AL 0.13 HI 0.14 PO 0.15 ST 0.17 ST 0.17 ST	0.09 60 0.09 80 0.11 AL 0.12 L0 0.13 HI 0.14 P0 0.15 ST 0.17 ST 0.19 E	0.03 CO 0.09 BO 0.10 CH 0.11 AL 0.13 HI 0.14 PO 0.15 ST 0.16 Hf 0.17 ST 0.19 ET 0.19 PE	0.03 CO 0.09 BO 0.10 CH 0.11 AL 0.12 LO 0.13 HI 0.14 PO 0.15 ST 0.17 ST 0.19 PE 0.20 TI	0.03 CO 0.09 BO 0.10 CH 0.11 AL 0.12 LO 0.14 PO 0.15 ST 0.15 ST 0.10 PE 0.19 PE 0.20 TI	0.03 CO 0.09 BO 0.10 CH 0.11 AL 0.13 HI 0.14 PO 0.15 ST 0.15 ST 0.19 PE 0.25 CC	HO.09 BOX BOA HO.09 BOX BOA HO.10 CHLORIN HO.11 ALUNINA HO.12 LOW DEH NO.13 HI DEHS NO.14 POLYVIN HO.15 STYRENE HO.15 STYRENE HO.19 PETROLE HO.29 CRAY IF HO.25 COPPER HO.25 KOTOR V

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SIMMARY

No. 18 Advanced Technology, GAS TURETHE, CLOSED CYCLE, COALLARB   No. 18 Advanced Technology, GAS TURETHE, CLOSED CYCLE, COALLARB   COST   C	YEAR : 1990			NATION	NATIONAL SUMMARY							
TOTAL   UTILITY   COST SAVINGS   CAPITAL   CAST		URBINE, CLOS	ED CYCLE,C	OAL(AFB)		### STI	RATEGY HE	AT PUMP				07
Total	CATEGORY	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT	COST	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	MISSIONS TONS PER TON	<u>¥</u>	OTAL	
Total	1			i	13572110	52706206	, en	145051	ł	1	300000	
Total	FUEL SAVINGS CASES ONLY	754			13572110	5270620	ď	-1966			338683	
Total   Tota	COST SAVINGS CASES ONLY	754			13572110	5270620	ď	-1966			335683	
Color   Colo	ENISSIONS SAVINGS CASE ONLY	0			0			164719	_		961328	
Intercritical   Intercritica	FUEL & COST SAVINGS CASES	754			13572110	52706208	ď	-1966			338683	
HATIONAL FUEL SAVINGS SURTHARY	FUEL, COST & EMISSION SAVING	0			0	_					0	
CANTENDED   CONTINUED   CONT			FU	JEL SAVING	ļ			ļ	·			
14809 -425 6002 0 0 64026 2197 4959 -425 2693 0 0 0 7862 1389  ONLY 9850 -425 2693 0 0 0 7862 1389  ONLY 9850 -425 2693 0 0 0 7862 1389  VING 0 0 0 0 0 0 7862 1389  HVERSION 14809 -425 2693 0 0 0 7862 1389  4959 -425 2693 0 0 0 7862 1389  4959 -425 2693 0 0 0 7862 1389  4959 -425 2693 0 0 0 7862 1389  VING 0 0 0 0 0 0 0 0 0 0 7862  VING 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CATEGORY	GAS D		BOILER FUEL	6AS		BOILER FUEL		S S	FUEL		
14809   -425   6082   0   0   0   6026   2197     4959   -425   2693   0   0   0   -7862   1389     4959   -425   2693   0   0   0   -7862   1389     4959   -425   2693   0   0   0   -7862   1389     50	SITE PLUS UTILITY			• • • • •						! ! !	<u>.</u>	
HVERSION (4959 -425 2693 0 0 0 -7662 1389 (4959 -425 2693 0 0 0 0 -7662 1389 (4959 -425 2693 0 0 0 0 -7662 1389 (4959 -425 2693 0 0 0 0 0 -7662 1389 (4959 -425 2693 0 0 0 0 0 -7662 1389 (4959 -425 2693 0 0 0 0 -7662 1389 (4959 -425 2693 0 0 0 0 0 -7662 1389 (4959 -425 2693 0 0 0 0 0 0 -7662 1389 (4959 -425 2693 0 0 0 0 0 0 0 0 0 -7662 1389 (4959 -425 2693 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL ALL	14809	-425	6002	0	0	0	4056	2197	75	4	
DNLY 9850 -425 2693 0 0 0 -7862 1389  ES 4959 -425 2693 0 0 0 11888 808  ES 4959 -425 2693 0 0 0 -7862 1389  VING 0 0 0 0 0 0 -7862 1389  HVERSION 14809 -425 2693 0 0 0 -7862 1389  4959 -425 2693 0 0 0 -7862 1389  ONLY 9850 0 0 0 0 0 0 -7862 1389  ES 4959 -425 2693 0 0 0 -7862 1389  VING 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FUEL SAVINGS CASES ONLY	6965	-425	2693	0	•	0	-7862	1389	75	<b>.</b>	
15 CASE ONLY   9850   0   3389   0   0   0   11868   606   11865   606   11865   606   11865   606   11865   606   11865   1389   60   0   0   0   0   0   0   0   0	COST SAVINGS CASES ONLY	6565	-425	2693	0	•	0	-7862	1389	75	•	
THIGS CASES	ENISSIONS SAVINGS CASE ONLY	9350	0	3389	0	•	0	11888	808		•	
LEUL CONVERSION 14809 -425 6082 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FUEL & COST SAVINGS CASES	6565	-425	2693	0	0	0	-7862	1389	75	*	
FUEL CONVERSION         14809         -425         6082         0         0         4026         2197           ASES ONLY         4959         -425         2693         0         0         -7862         1389           ASES ONLY         4959         -425         2693         0         0         -7662         1389           ASES ONLY         4959         -425         2693         0         0         -7662         1389           ASES ONLY         9650         0         3369         0         0         -7662         1389           ATHIS ONLY         9650         0         3369         0         0         -7662         1369           ATHIS ONLY         9650         0         0         0         0         -7662         1369           ATHIS ONLY         9650         0         0         0         0         -7662         1369           ATHIS ONLY         9650         0         0         0         0         -7662         1369           ATHIS ONLY         9650         0         0         0         0         0         0         0         0         0         0         0         0         0 <td>FUEL, COST &amp; ENISSION SAVING</td> <td>0</td> <td>•</td> <td>0</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td></td> <td>•</td> <td></td>	FUEL, COST & ENISSION SAVING	0	•	0	•	•	•	•	•		•	
14809 -425 6082 0 0 4026 2197  SES ONLY 4959 -425 2693 0 0 -7862 1389  IGS CASE ONLY 4959 -425 2693 0 0 -7862 1389  IGS CASE ONLY 4959 -425 2693 0 0 0 -7862 1389  IGS CASE ONLY 4959 -425 2693 0 0 0 -7862 1389  IGS CASE ONLY 4959 -425 2693 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	INCLUDING COAL FUEL CONVERSION											
4959     -425     2693     0     0     -7862     1389       4959     -425     2693     0     0     -7662     1389       9650     0     3389     0     0     11668     606       4959     -425     2693     0     0     -7862     1389       0     0     0     0     0     0     0	TOTAL ALL	14809	-425	6082	0	0	•	4056	2197	2	•	
4959     -425     2693     0     0     -7662     1389       9650     0     3389     0     0     11666     606       4959     -425     2693     0     0     0     0     0       0     0     0     0     0     0     0	FUEL SAVINGS CASES ONLY	4959	-425	2693	0	0	0	-7862	1389	75	<b>4</b>	
9650 0 3389 0 0 0 11666 606 4959 -425 2693 0 0 0 -7862 1389 0 0 0 0 0 0 0	COST SAVINGS CASES DRLY	6565	-425	2693	0	0	0	-7862	1389	75	4	
.6 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FINISSIONS SAVINGS CASE ONLY	9850	0	3389	0	0	0	11868	808		0	
	FUEL & COST SAVINGS CASES	6565	-425	2693	0	0	0	-7862	1389	75	•	
	FUEL, COST & EHISSION SAVING	0	0	0	•	0	•	0	0	•	•	

HEAT PACKING  BAKING  BAKING  MALT BEVERAGE  WOVER FADRIC MILL  WOVER FADRIC MILL  WEMSPERNT MILL  WEMSPERNT MILL  WEMSPERNT MILL  WEMSPERNT MILL  WOOD  CCARUGATED PAPER  CCARUGATED PAPER  WOOD  CHLORINE  ALUMINA  LOM DENS. POLYETHYL  WOOD  CONO  FOLYVINYL CHLOPIDE  WYLON  STYRENE  WYLON  STYRENE  WYLON  STYRENE  WYLON  WYLON  STYRENE  WYLON  WYLON  WYLON  STYRENE  WYLON	260 11		0004 0004		KAITO	LAN T	0117110	IOIAL	2
	48 118 91 91 91 92 53 72 72 73	0.000	•						
0000.0 0000.0	181 77 91 91 92 54 92 55 95 95 95 95 95 95 95 95 95 95 95 95	0.000		0	0.000	33502	51337	84839	0.00
	91 91 91 91 91 91 91 91 91 91 91 91 91 9	0.000	•	0	0.000	5835	16786	22621	0.00
	777 911 911 59 505 72 72 72 73	0.000	•	•	0.000	31683	20256	51939	0.00
	91 91 202 205 72 72 459		0	0	0.000	17273	83274	100548	00.00
0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0	205 29 72 72 32 32 32 32	0.000	0	•	0.000	12986	96163	111149	00.0
0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0	20 2 2 2 2 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2	0.000	•	•	0.000	17873	96292	114165	00.00
0000.0	205	0.000	0	0	0.000	1606£	74301	113392	00.00
0000.0	32 32 32	0.000	•	•	0.000	189040	218524	407564	0.00
0000.0	32	0.000	•	0	0.000	51753	76864	128618	0.00
0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0 0000.0	32	0.000	•	•	0.000	108046	540319	648865	0.00
0000.0	971	0.000	0	•	0.000	50357	34273	84630	0.00
	<del>-</del>	0.000	•	0	0.000	16289	159056	175345	00.0
	0.0 53.7	0.000	0	•	0.000	14309	57565	71874	00.0
	0.0 73.7	0.000	o	•	0.000	56093	78782	104680	00.0
	0.0 4.2	0.00.0	•	•	0.000	9258	4463	13722	0.00
	0.0 20.7	0.00.0	0	•	0.000	5235	22168	27403	00.00
0.00.0	0.0 7.0	0.000	•	•	0.000	93430	7532	101012	00.0
0.000	0.0 16.2	0.000	0	0	0.000	700469	16628	717096	0.00
0.000.0	0.0 293.3	0.000	0	0	0.000	23%786	313959	2710745	0.00
0.000.0	0.0 55.8	0.000	0	0	0.000	33888	59693	93580	0.00
0.000	0.0 487.4	0.00.0	•	0	0.000	4342768	521614	4864592	00.0
0.000	0.0 74.2	0.000	0	0	0.000	50453	79390	129644	0.00
0.000	0.0 62.6	0.000	0	0	0.000	48510	98446	136956	00.00
	0.0 93.8	0.00.0	0	0	0.000	53626	100465	154091	0.00
TOTAL ALL	292		00	0		8348608	2820845	11169455	
FUEL SAVINGS CASES UNLY COST SAVINGS CASES ONLY	. 0					<b>5</b> 0	<b>-</b> •	<b>.</b>	
ENISSIONS SAVINGS CASE ONLY	0 2623		0 (	00		8348608	2820845	11169455	
FUEL & COST & EMISSION SAVING	. 0			- 0		- 0	9 9	- 0	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SURIARY

07				•													
	NGS  TOTAL	31712096	31712096	5	בר פר	o	0	<b>3</b>	•	•	•	•	> •	<b>.</b>	<b>-</b>	<b>.</b>	>
	IONS SAVI PER YEAR UTILITY		9794866	9	65	197	0	197		•			<b>-</b>	<b>-</b> !	7,61	<b>-</b>	>
	EMISS. TONS		216	5	OTH SAV	~		٨	1		•	J		•	M		
IT PUMP	PLAN	21917	21917		COAL	15579	0	15579	0	•	15570	1700	•	0 (	155/9	<b>•</b>	>
TRATEGY HEA		, 000		<b>5</b>	BOILER FUEL	a	0	0 0	• •	0	•	•	<b>-</b>	o (	o (	0 0	>
× *	CAPITAL COST \$000			HIMARY		a	0	9 9	•	0	٠	9 0	<b>s</b> (	<b>o</b> (	•	0 0	>
1 8.6.	SAVINGS DOLLARS \$000			0 SAVINGS SU	6AS 6AS	G	0	<b>-</b> 0	• •	0	¢	<b>&gt;</b> c	<b>-</b>	0 (	<b>5</b> (	0 6	>
, PETROLEUP	COST	i		ONAL FUEL	EL SAVINGS PETROLEUM BOILER FUEL	6082	0	6082	0	•	600	300	<b>-</b>	0	6082	<b>-</b>	>
DIR.FIRED	UTILITY FUEL SAVINGS 10**12 BT	9018	9018	O INATI	OLEUM ILLAT	c	0	<b>)</b>	0	0	•	•	> <	0	0 (	9 6	5
INJECT.6/T	TOTAL FUEL SAVINGS 10∺412 BTU		000	•	HATURAL PI GAS DI	14870	0	14870	•	0	0.00%		> •	0	0/851	0 0	>
NCED TECHNOLOGY,ST	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CNLY	ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES	FUEL,COST & ENESSION SAVINS	CATEGORY	SITE PLUS UTILITY	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY ENTSSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING	INCLUDING COAL FUEL CONVERSION	ELIEL CAUTAINS CASES ONLY	FUEL SAVINGS CASES URLY	COST SAVINGS CASES CHLY	ENISSIONS SAVINGS CASE UNLY	FUEL & COST SAVINGS CASES	FUEL, COST & ETTSSIUM SAVING
	EAM INJECT.G/T,DIR.FIRED,PETROLEUM B.G. *** STRATEGY NEAT PUMP	NCED TECHNOLOGY,STEAH INJECT.G/T,DIR.FIRED,PETROLEUM B.G. *** STRATEGY HEAT PUMP  TOTAL UTILITY COST SAVINGS CAPITAL EMISSIONS SAVINGS  Y FUEL FUEL DOLLARS COST TONS PER YEAR SAVINGS \$000 \$000 PLANT UTILITY TOTAL	01067,STEAH INJECT.6/T,DIR.FIRED,PETROLEUH B.G. *** STRATEGY HEAT PUMP  TOTAL UTILITY COST SAVINGS CAPITAL EMISSIONS SAVINGS FUEL FUEL DOLLARS COST TONS PER YEAR SAVINGS SAVINGS \$000 PLANT UTILITY TOTAL  10	TOTAL UTILITY COST SAVINGS CAPITAL   EMISSIONS SAVINGS	TOTAL UTILITY COST SAVINGS   CAPITAL   EMISSIONS SAVINGS   FUEL   FUEL   DOLLARS   COST   C	TOTAL UTILITY	TOTAL UTILITY COST SAVINGS CAPITAL ENTSSIONS SAVINGS FUEL FUEL DOLLARS COST TONS PER YEAR SAVINGS SURPHARY	TOTAL   UTILITY   COST SAVINGS   CAPITAL   ENISSIONS SAVINGS   FUEL   COST SAVINGS   COST	TOTAL   UTILITY   COST SAVINGS   CAPITAL   ENISSIONS SAVINGS   FUEL   ENISSIONS SAVINGS   FUEL   ENISSIONS SAVINGS   FUEL   ENISSIONS SAVINGS   FUEL   ENISSIONS SAVINGS   SAV	TOTAL   UTILITY   COST SAVINGS   CAPITAL   COST   SAVINGS   CAPITAL   COST   SAVINGS   SAVINGS   CAPITAL   COST   SAVINGS	TOTAL   UTILITY   COST SAVINGS   CAPITAL   COST SAVINGS   COST	TOTAL UTILITY COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST COST COST CAPITAL COST CAPITAL COST CAPITAL COST CAPITAL COST CAPITAL COST CAPITAL CAPITA	TOTAL   UTILITY   COST SAVINGS   CAPITAL   EMISSIONS SAVINGS   COST	TOTAL UTILITY COST SAVINGS CAPITAL EHISSTONS SAVINGS CAPITAL FUEL FUEL SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL FUEL SAVINGS CAPITAL FUEL SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST CAPITAL TOTAL COST CAPITAL COST CAPITAL COST CAPITAL	TOTAL UTILITY COST SAVINGS CAPITAL EHISSTONS SAVINGS CAPITAL FUEL FUEL SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL FUEL SAVINGS CAPITAL COST SAVINGS CAPITAL FUEL SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST SAVINGS CAPITAL COST COST COST COST COST COST COST COST	TOTAL UTILITY COST SAVINGS CAPITAL TOTAL FIRE PURP FEAT PURP FIRE TOTAL TOTAL UTILITY COST SAVINGS CAPITAL TOTAL SAVINGS SAVIN	TOTAL UTILITY COST SAVINGS CAPITAL FIRSTONS SAVINGS FER FERF FERF FERF FOLKE FOLKE FOR SAVINGS CAPITAL FOR FERF FERF FERF FOLKE FOR SAVINGS SA

01 SIZE 101AL (IIW)	68665 0.00	23287 0.00	55558 0.00	102520 0.00	112632 0.00	116206 0.00	117656 0.00	429152 0.00	134528 0.00	661204 0.00	87467 0.00	177205 0.00	73508 0.00	107861 0.00	14519 0.00	28001 0.00	111687 0.00	797088 0.00	2984452 0.00	97450 0.00		4864582 0.00
EHISSIONS SAVINGS TOUS PER YEAR	51337	16786	20256	83275	98163	26296	74301	218524	76864	540819	34273	159056	57565	78782	4463	22168	7532	16628	313958	59693		521814
PUHP	37327	6501	35301	19246	14469	19914	43555	210628	57664	120395	53194	18149	15943	29079	10056	5633	104155	780461	2670494	37757		4342768
*** STRATEGY HEAT PITAL EHISSIONS COST SAVINGS \$000 RATIO	0.000	0.000	000.0	000.0	0.000	0.000	0.000	0.000	000.0	000.0	0.000	000.0	0.000	0.000	0.000	0.000	000.0	0.000	0.000	0.000	0	
*** STRA CAPITAL COST \$000	0	٥	0	0	0	•	•	•	•	0	0	0	•	•	5	0	0	0	0	0	0	
. B.G. SAVINGS DOLLARS \$000	•	0	0	0	0	•	•	0	0	0	0	0	0	0	0	•	0	0	c	0	0	
	000.0	000.0	0.000	000.0	0.000	0.000	0.000	0.000	0.000	0.000	000.0	0.000	0.000	0.00.0	0.000	0.000	0.000	0.000	0.000	000.0	0.000	
DIR.FIRED,COAL DER UTILITY COST FUEL SAVINGS RATIO	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	439.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	497.4	,
CESS LEVEL I INJECT.G/T.I SY TOTAL FUEL SAVINGS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
જેં જે										_	_	_		0	00	000.0	0.00.0	000	0.00.0	00	00	00
CTAS GENERAL SUNTARY - PROCESS HO.20 ADVANCED TECHNOLOSY,STEAN IND FUEL ENERSY SAVINSS RATIO SA	0.000	0.000	0.000	0.000	000.0	0.000	0.000	0.000	0.000	0.000	000.0	0.000	0.000	0.000	0000	9.	0	000.00	9.	0.000	0.000	0.000

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VEAR : 1990			HATIONAL	HATIONAL SUMMARY							
IOLOGY, STEAI	1 INJECT.G/T,	DIR.FIRED	COAL DER.	9.6.	S ***	*** STRATEGY HEAT PUMP	AT PUMP				07
	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT	-	COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	SAVING YEAR ITY	STOTAL	
! ! !	0	9018	•	0	0 0 1 1 1 1 1	. •	23438048	:	9794864 3	33232880	
	0	0		0		0				•	
	0	٥		0		•		•	•	•	
EMISSIONS SAVINSS CASE ONLY	0	9018		0		0	23438048	948 9794864		33232880	
FUEL & COST SAVINGS CASES	0	•		0		0		•	0	•	
FUEL, COST & ENISSION SAVING	0	0		0		•		•	•	•	
		NATI	NATIONAL FUEL SAVINGS SUNMARY	SAVINGS	SUNMARY						
		1	FILE SAVINGS	1	10x412 BTII	; ; ; ;	;				
	HATURAL PETROLEUM PETROLEUM GAS DISTILLATE BOILER FUEL	PETROLEUM DISTILLATE	PETROLEUM BOILER FUEL	6AS	COAL DERIVED DISTILLATE BOILER FUEL	BOILER FUEL	COAL FUEL	OTHER Savings	TOTAL FUEL		
				:						<b>!</b>	
	14370	0	6082	0	c	o	15579	2197		•	
	0	0	9	•	• •	9	9	6			
	0	0	•	0	0	•	•	•			
ILY	14870	0	6082	•	0	0	15579	2197			
	0	0	0	0	0	•	•	0		0	
FUEL, COST & ENISSION SAVING	0	0	•	0	•	0	0	0		•	
INCLUDING COAL FUEL CONVERSION											
	14870	0	6082	0	٥	•	15579	2197		0	
	0	•	0	٥	0	0	•	0		0	
	•	0	0	•	0	0	0	•		0	
EMISSIONS SAVINGS CASE ONLY	14870	0	6082	0	0	•	15579	2197			
s	0	0	0	0	0	•	•	0		•	
FUEL, COST & EMISSION SAVING	0	0	٥	0	•	0	0	0		•	

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01 ECS SIZE (FIU)	0.00	0.00	0.00	2.03*	0.00	0.00	0.00	0.00	0.00	00.0	0.00	18.65	10.86	6.70*	0.00	3.91*	0.00	0.00	0.00	7.40*	0.00	0.00	5.84*	10.69	
INGS  TOTAL	88665	23267	55558	33681	112632	116206	117656	429152	134528	661204	87467	54154	20941	33300	14519	9473	111687	797085	2984452	25202	4864582	135605	36740	42121	10990093 201463 221936 10734465 167782
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16736	20256	83275	98163	96292	74301	216524	76864	540819	34273	159056	57565	76762	4463	22168	7532	16628	313958	59693	521814	79390	88446	100465	2820844 490393 566175 2171397 407118
PUNP EMIS TORIS PLANT	37327	6501	35301	+6564-	14469	19914	43555	210628	57664	120395	53194	-104902	-36624	-45481	10056	-12689	104155	780461	2670494	-34490	4342768	56215	-51707	-58344	6169252 - 288930 - 344235 8563086 - 239356
TEGY NEAT EMISSIONS SAVINSS RATIO	0.000	0.000	0.000	0.329	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.306	0.285	0.309	0.000	0.339	0.00.0	0.000	0.000	0.259	0.000	0.000	0.258	0.263	i
*** STRATEGY HEAT CAPITAL EMISSIONS COST SAVINSS \$000 RATIO	•	•	0	1769229	•	0	•	•	•	•	•	1546557	750969	982662	•	297586	•	•	o	1062162	O	•	1348361	1669369	2446893 7930336 7677664 6131108
PFB) SAVINGS DOLLARS \$000	0	C	•	-50598	•	•	•	•	•	•	•	24819	11001	54371	0	8259	•	•	o	43106	0	0	80792	42718	214469 189650 265067 240247
FIRED, COAL(PFB) COST SAVI DOL	0.000	0.000	0.000	-0.128	0.000	0.000	0.000	0.000	0.000	0.00.0	000.0	0.039	0.039	0.129	0.000	0.077	0.000	000.0	0.000	0.106	0.000	0.000	0.137	0.056	
DIRECT FIF UTILITY FUEL SAVINDS	43.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.5	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	2623 453 529 2016 350
•	0.0	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0-	1.5	9.5	0.0	5.6	0.0	0.0	0.0	7.1	0.0	0.0	10.6	12.0	6 4 4 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0
JARY - FROCES COSY, STEAN IN FUEL ENERGY SAVINGS RATIO	0.000	0.000	0.000	0.063	0.000	000.0	0.000	0.000	0.000	0.000	0.000	-0.002	0.019	0.000	0.000	0.089	0.000	0.000	0.000	0.065	0.000	0.000	0.066	0.057	
CTAS GENERAL SUMMARY - FROCESS LEVEL HO.21 ADVANCED TECHNOLOGY,STEAM INJECT.G/T FUEL ENERGY TOTAL SAVINSS FUEL RATIO SAVINSS	HO.01 HEAT PACKING	NO.02 BAKING	HO.03 HALT BEVERAGE	HO. 04 HOVEH FABRIC MILL	NO.05 SAW NILL	NO.06 HEWSPRINT MILL	NO.07 KRITING PAPER HILL	HO.08 CORRUGATED PAPER	NO.09 EOX EOARD	NO.10 CHLOZINE	HO.11 ALUMIHA	NO.12 LOM DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	HO.14 POLYVINYL CHLCPIDE	MO.15 STYRENE-BUT. RUB.	HO.16 HYLON	HO.17 STYRENE	HO.18 ETHYLENE	NO.19 PETROLEUM REFININS	NO.20 TIRES	NO.23 INTEGRATED STEEL	NO.24 GRAY IPON FOUNCRY	NO.25 COPPER	HO.26 MOTOR VEHICLE	TOTAL ALL FUCL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENTSSIEWS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING

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40	EMISSIONS SAVINGS TONS PER YEAR T UTILITY TOTAL	*****	31	1404290 572069 2038629 777829	8	0 0 0			TOTAL FUEL S			133		~			129		116		120	
AT PUMP	EMISSIOMS SAVII TONS PER YEAR PLANT UTLLITY			-832222 14 -1260800 20				•	COAL OTHER FUEL SAVINGS		Ñ	-514	2		0		12691 2197	-534 63	-616 71	2		
*** STRATEGY HEAT PUMP	CAPITAL COST \$000		28916128	25524948	0	0	HHARY	10**12 BTU	COAL DERIVED DISTILLATE BOILER FUEL	•		•		0	•		0	0		0	0	
D,COAL(PFB)	COST SAVINGS DOLLARS \$000		714591	811577	0	0	NATIONAL FUEL SAVINGS SUMMARY	;	PETROLEUM COAL BOILER GAS DI FUEL		0082	158			0		6002 0	153 0		5906		
INJECT.G/T, DIRECT FIRED, COAL(PFB)	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS			116 1905	_		NATION	;	NATURAL PETROLEUM PE GAS DISTILLATE B F			501			0		14508 0	452 0	501 0	14289 0	434 0	
YEAR : 1990 HO.21 ADVANCED TECHNOLOGY,STEAM IN.	CATEGORY SA		TOTAL ALL	COST SAVINGS CASES ONLY	EMISSIONS SAVINGS CASE ONLY	FUEL, COST & ENISSION SAVING		i	NA CATEGORY	SITE PLUS UTILITY	TOTAL TOTAL CONTROL OF S	COST SAVINGS CASES ONLY	ENISSICHS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	THELUDING COAL FUEL CONVERSION	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE CHLY	FUEL & COST SAVINGS CASES	

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EAR SIZE Y TOTAL (FB4)	37 88665 0.00	66 4223 0.19*	56 55558 0.00	74 15854 2.08*	63 112632 0.00	92 1141 68.66	01 15836 25.70	24 429152 0.00	64 134528 0.00	18 42350 51.96	73 280 20.06	56 6942 19.90	65 8033 11.01	82 16924 6.97#	4463 14519 0.00	68 4842 4.07*	7532 111687 0.00	28 797088 0.00	58 2984452 0.00	93 12367 7.66#	14 4864582 0.00	90 15307 18.24	46 17742 6.05*	65 20512 11.07	44 9775311 0 99068 39 9592862
EMISSIONS SAVINGS - TONS PER YEAR NT UTILITY TO	37327 51337	-12563 16786	35301 20256	-67421 83274	14469 98163	95151 96292	-58465 74301	210628 218524	57664 76864	498468 540818	339% 34273	-152115 159056	49532 57565	-61858 78782	10056 44	-17326 22168	104155 75	780461 16628	2670494 313958	-47325 59693	4342768 521814	-64083 79390	-70705 88446	-79853 100465	6954462 2820844 0 0 0 -416283 515350 8263323 1329539
EMISSIONS SAVINGS RATIO PLANT	0.000	0.181 -1	0.000	0.1556	0.000	0.010 -9	0.134 -5	0.000 21	0.000	0.064 -49	0.003 -3	0.039 -15	0.109 -4	0.157 -6	0.000	0.173 -1	0.000 10	3.000 78	0.000 267	0.127 -4	0.000 434	0.113 -6	0.125 -7	0.129 -7	695
COST SAVINGS \$000 RATIO	•	613525	0	1811442	0	1000730	1087377	•	0	5275323	482563	1672799	728541	1000204	•	302813	•	o	0	1072263	0	927783	1367105	1664085	19006544 0 7601379
COST SAVINGS DOLLARS ATIO \$000	0	-46635	0	+1518-	0	-47027	39731	o	0	-98143	18845	-93634	-10304	22336	0	-866	•	0	0	18472	0	78952	43560	5720	-156205 0 227917 0
<u> </u>	0.000	-0.327	0.000	-0.221	0.000	-0.108	0.081	0.000	0.000	-0.040	0.043	-0.146	-0.037	0.053	0.000	-0.003	0.000	000.0	0.000	0.040	0.000	0.142	0.075	0.003	ı
UTILITY FUEL SAVINSS	48.0	15.7	18.9	77.8	91.7	91.4	59.1	5.502	72.5	1.665	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	2623 471 1245
TOTAL FUEL SAVINGS	0.0	-0.5	0.0	-10.5	0.0	-36.1	-4.3	0.0	0.0	-148.8	-11.6	-53.2	-10.6	-6.8	0.0	-2.0	0.0	0.0	0.0	-5.3	0.0	-8.0	-7.8	8.8	-314
FUEL ENCRGY SAVINGS RATIO	0.000	-0.013	0.000	-0.097	0.000	-0.300	-0.039	0.000	0.000	-0.222	-0.104	-0.305	-0.141	-0.059	0.000	-0.069	0.000	0.000	0.000	-0.043	0.000	-0.051	-0.049	-0.042	<b>&gt;</b> -
FUEL ENERGY SAVINGS SAVINGS RATIO	NO.01 HEAT PACKING	110.02 BAKING	HO.03 MALT BEVERAGE	RO.04 WOVEN FAERIC MILL	NO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 WPITING PAPER MILL	HO.08 CCRRUGATED PAPER	HO. 09 EON EOARD	HO.10 CHLOZINE	HO.11 ALUMINA	HO. 12 LOW DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	HO.15 STYRENE-BUT. RUB.	нэ. 16 нугон	RO.17 STYRENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	NO.23 INTEGRATED STEEL	NO.24 GRAY IRON FOUNDRY	HO. 25 COPPER	NO.26 HOTOR VEHICLE	TOTAL ALL COST SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENTSCIOUS SAVINGS CASE ONLY

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- COGEHERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUPHARY

YEAR : 1990 NO.22 ADVANCED TECHNOLOGY,STEAM INJECTED G/T,INJIRECT FIRED,COALLAFB)	1 INJECTED 6/	T, INDIREC	T FIRED,CC	AL(AFB)	*** STR	*** STRATEGY HEAT PURP	AT PURP				07
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BT		COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		EPLANT	ENISSIONS SAVINGS TOMS PER YEAR PLANT UTILITY T	9	S TOTAL	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	!	;	!	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
TOTAL ALL	-1494	9018		-510703	80478128		15081360	9794866		24876208	
FUEL SAVINGS CASES ONLY	•	0		•	•					•	
COST SAVINGS CASES ONLY	-278	2190		1187199	36275952		-2053139			454606	
ENISSIONS SAVINGS CASE ONLY	0	3101		0	0		20877088	3305604		24162688	
FUEL & COST SAVINGS CASES	•	0		0	•			•	•	•	
FUEL, COST & ENISSION SAVING	•	•		0	0			•	•	•	
		HATI	HATIOHAL FUEL SAVINGS SUMMARY	SAVINGS S	UIHARY						
	1 1 1 1 1 1 1		FUEL SAVINGS	i	10**12 BTU		:				
CATEGCRY	NATURAL PE GAS DI	PETROLEUM DISTILLATE	PETROLEUM BOILER FUEL	GAS D	COAL DERIVED DISTILLATE BU	GOTLER FUEL	COAL	OTHER Savings	TOTAL FUEL		
	; ; ; ; ; ;			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
SITE PLUS UTILITY											
TOTAL ALL	14779	-409	6082	0	0	0	5037	2197	3-1-	•	
FUEL SAVINGS CASES ONLY	0	0	•	•	0	٥	•	•		•	
COST SAVINES CASES ONLY	1004	-408	849	•	0	•	-1928	124	-278	60	
ENISSIONS SAVINSS CASE ONLY	13267	0	4935	•	0	•	8949	2031		•	
FUEL & COST SAVINGS CASES	•	•	0	0	0	•	0	•		•	
FUEL, COST & EMISSICH SAVING	•	•	•	•	0	0	•	•		•	
INCLUDING COAL FUEL CONVERSION											
TOTAL ALL	14779	-408	6082	•	•	•	5037	2197	1496	•	
FUEL SAVINGS CASES ONLY	0	0	0	0	•	٥	0	0		•	
COST SAVINGS CASES ONLY	1084	-408	648	0	•	۵	-1928	124	-278	•	
ENISSIONS SAVINGS CASE CHLY	13267	0	4935	0	•	0	6569	2031		0	
FUEL & COST SAVINGS CASES	0	0	a	0	•	•	•	0		0	
FUEL, COST & EMISSION SAVING	•	•	•	0	•	0	•	•		•	

ECS SIZE (FIL)	9 0.00	1 0.00	00.0 6	00.00	00.00	S 0.00	00.0 2	4 0.00	00.00	00.00	00.00	9 0.00	4 0.00	00.00	0.00	3 0.00	2 0.00	% 0.00	00.00	00.00	00.00	00.00 %	90.00	0.00			ñ, α	
INGS TOTAL	64839	2262	51939	100548	111149	114165	113392	407564	128618	648865	64630	175345	71874	104880	1372:	27403	10101	7170%	271074	93580	4864582	129644	136956	154091	1116945		11169455	
EMISSIONS SAVINGS TOUS PER YEAR	51337	16786	20256	63274	98163	96292	74301	218524	76364	540819	34273	159056	57565	78782	4463	22168	7532	16628	313959	59693	521814	79390	99449	100465	2820645	• •	2820845	9 (
ENIS TONS PLANT	33502	5835	31683	17273	12986	17673	16061	189040	51753	108046	50357	16289	14309	26099	9258	5235	93480	700469	2396786	33868	4342768	50453	48510	53626	8348603	•	8348603	•
SIRALEGY HEAT AL EMISSIONS F SAVINGS PATIO	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	000.0	0.000	0.000	000.0	000.0	000.0	0.00.0	0.000	0.000	0.000				
CAPITAL COST \$ 5000	•	0	0	•	•	0	٥	0	0	•	•	0	•	•	0	•	0	•	•	•	•	0	•	0	0	- 0	0	0 (
B.G. SAVINGS DOLLARS \$000	9	o	•	0	•	0	0	0	0	•	0	0	•	•	•	•	•	•	0	0	6	0	•	0	0	9 0	0	0 (
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	000.0	0.000	0.000	0.000	0.000	000.0	0.000	000.0	0.000	000.0	000.0	0.000	0.000	0.000	0.000	•			
FIRED, PETROLEUM UTILITY COST FUEL SAVINGS RATIO	48.0	15.7	18.9	77.9	7.16	4.16	59.1	205.4	72.5	499.1	32.0	149.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	437.4	74.2	32.6	93.8	CJ.	00	2623	
CYCLE, DIPECT GY TOTAL U FULL SAVINCS S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 · <b>0</b>	0.0		9 6	0	0
	0.000	0.000	0.000	0.00.0	0.000	0.000	0.000	000.0	000.0	0.000	0.000	000.0	000.0	0.000	0.000	0.000	0.000	0.000	0000.0	0.000	0.000	0.003	000.0	0.00.0				
NO.23 ADVANCED TECHNOLOGY, CONS. FUEL ENEP THOUSTRY SAVINGS RATIO	HO. 01 HEAT PACKING	HO. 02 BAKING	NO.03 NALT BEVERAGE	KO. 04 WOVEN FABRIC MILL	NO.05 SAH MILL	HO.06 HEWSPRINT MILL	HO.67 WRITING PAPER MILL	HO.08 CORRUGATED PAPER	110.09 BOX BOARD	RO. 10 CHLORINE	NO.11 ALUHINA	HO.12 LOW DENS. POLYETHYL	HO.13 HI DENS. POLYETHYL	HO. 14 FOLTVINYL CHLOPIDE	NO.15 STYRENE-BUT. RUS.	110.16 NYLON	NO.17 STYRENE	NO. 18 ETHYLENE	NO. 19 PETPOLEUM REFINING	MO.20 TIRES	NO.23 INTEGRATED STEEL	NO.24 GPAY IFON FOUNDRY	NO.25 COPPER	> α	TOTAL ALL	FUEL SAVINGS CASES CHLY COUT ENVINGS CASES OFFE	EHICSIGHS SAVINGS CASE ONLY	FULL & COST SAVINGS CASES

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GS  TOTAL	31712096 0 31712096 31712096			00000
NS SAVIN ER YEAR ILITY				700700
MISSIO TONS P	1	OTHER	219	2197 0 0 197 0 0
PLANT	219172			15579 0 0 15579
	i <b>a</b>			<b></b>
CAPITAL COST \$000		2 % C	00000	00000
AVINGS DOLLARS \$000	99000	SAVINGS SI 10** GAS DI	c o o o o o	
	;	EL SAVINGS PETROLEUM BOILER FUEL		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
UTILITY FUEL SAVINGS 10**12 BT		HATI FU STILLATE		••••
TOTAL FUEL SAVINSS 10**12 BTU		NATURAL PE	14870	14870 0 14870 0
CATECORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CHLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING	CATEGORY	SITE PLUS UTILITY TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSICHS SAVINGS CASE ONLY FUEL 1 COST SAVINGS CASES FUEL, COST 1 EMISSICH SAVING	INCLUDING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENTSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING
	TOTAL UTILITY COST SAVINGS CAPITAL ENISSIONS SAVING FUEL FUEL DOLLARS COST TONS PER YEAR SAVINGS SAVINGS \$000 \$000 PLANT UTILITY 10**12 BTU 10**12 BTU	TOTAL UTILITY COST SAVINGS CAPITAL EMISSIONS SAVINGS FUEL FUEL FUEL DOLLARS COST TONS PER YEAR SAVINGS SAVINGS \$000 \$000 PLANT UTILITY TOTAL  10**12 BTU 10**12 BTU  0 9018 0 0 0 21917216 9794064 3171209  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FUEL FUEL COST SAVINGS CAPITAL COST SAVINGS COST COST COST COST SAVINGS SAVINGS SAVINGS SAVINGS SAVINGS SAVINGS SAVINGS SAVINGS SAVINGS SAVINGS SAVINGS SAVINGS SUPERATOR OF COST COST COST COST SAVINGS SUPERATOR COST COST COST COST SAVINGS SUPERATOR COST COST SAVINGS SUPERATOR COST COST COST COST COST COST COST COST	TOTAL   UTILITY   COST SAVINGS   CAPITAL   FILES   COST

I

OI ECS SIZE (FN)	0.0		0.00	9.0	0.80	0.0	0.0	0.00	0.00	0.00	0.00	0.0	•	0.00		0.00	9.0	0.00	9.00	00.0	0.00	90.0	0.00	0.00					
NGS  TOTAL	99999	23287	55558	102520	112632	116206	117856	429152	134520	661204	87467	177205	73508	107861	14519	26001	111687	797068	284482	97450	4664582	135605	142496	166215	11623739	•	11623739	••	
ENISSIONS SAVINGS TC:S PCR YEAR UTILITY TO	51337	16786	20256	63275	99163	26295	74301	210524	76864	619055	34273	159056	57545	76762	4463	22168	7532	16628	313958	59693	521814	79390	99498	100465	Š	•	2620844	• •	
FUTP ENTS TC:IS PLANT	37327	6501	35301	19246	14469	19914	43555	210628	57664	120305	531%	10149	15943	29079	10056	5833	104155	766461	2670494	37757	4342768	56215	54050	59750	6802891	•	6602091	• •	
TEGY HEAT EMISSIONS SAVINS RATIO	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000	. 000	0.000	0.000	0.00	0.000	0.000	0.000	0.000	0.000	000.0	i				
CAPITAL EMISS COST SAVIN	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	0	•	•	9	• •	
B.G. SAVINGS DOLLARS \$000	•	•	0	•	•	•	•	•	•	•	•	•	٠	•	•	•	•	•	•	•	•	0	•	•	0	0 (	• •	••	
DER. COST ATTO	0.000	0.000	0.000	0.000	000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	•				
FIRED, COAL UTILITY FUEL SAVINGS R	43.0	15.7	16.9	77.8	41.7	<b>\$.16</b>	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	3	•	2623	00	
<b>⇒</b> ∽	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>o</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	•	90	• •	
FOCE COLL COLL CHERGY SAVINGS RATIO	0.000	0000.0	000.0	000.0	0.000	0.000	000.0	000.0	000.0	0.000	000.0	000.0	0.00.0	0.000	0.000	0.000	0.000	0.000	000.0	000.0	0.000	0.000	0.000	0.000					
CTAS GEHERAL SURMARY - FROCESS LEVEL HO.24 ADVANCED TECHNOLOST, CONS.C.CLE, DIFFECT FUEL ENERGY TOTAL SAVINSS FUEL RATIO SAVINSS	NO.01 HEAT PACKING	NO.02 BAKINS	MO.03 HALT BEVERAGE	NO.04 WOVEN FABRIC HILL	HO.05 SAW HILL	NO.06 REUSPRINT HILL	HO. 07 WRITING PAPER HILL	HO.08 COMPUSATED PAPER	1:0.09 EOX BOARD	NO. 10 CHLORINE	NO.11 ALCHINA	KO.12 LOW DERS. POLYETHYL	NO.13 HI DENS. POLYETHAL	RO. 14 FOLYVINYL CHLORIDE	NO. 15 STYPENE-BUT. PUB.	HD.16 HYLON	HO.17 STYRENE	HO. 13 ETHYLENE	NO.19 PETROLEUM REFINING	1:0.20 TIRES	KO.23 INTEGRATED STEEL	NO.24 GPAY IRON FOUNDRY	NO.25 CCPPER	VEHICLE	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES OFFER EMISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES FUEL, COST & ENISSICH SAVING	

- COGENTRATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SURTHRY

110.24 ADVANCED TECHNOLOGY, COMB. CYCLE, DIRECT FIRED, LOAL DER. B.G. TOTAL UTILITY COST SAV CATEGORY FUEL FUEL DO	CLE, DIRECT	FIPEDALO	AL DER. B.		S ***	*** STRATEGY HEAT PURP	AT PURP				•
~ <u>~</u>	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVINGS 10*12 BT		COST SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	ENISSIONS SAVINGS TONS PER YEAR PLANT UTILITY T	꾶	TOTAL	
		;	i		1	;					
411	٥	9018		•		•	23436646		979:064 3	33232860	
FUEL SAVINGS CASES ONLY	•	•		•		•				•	
COST SAVINGS CASES CHLY	0	•		•	_	•		•	•	•	
ENISSIONS SAVINGS CASE ONLY	0	9018		٥	_	•	23436048		9794864 3	332328BP	
COST SAV 11:55 CASES	0	0		•	_	•				•	
FUEL, COST & ENISSION SAVING	0	•		•				•	•	• •	
		HATI	HATIONAL FUEL SAVINGS SUPPIARY	SAVINGS	SUPPIARY						
		:	FUEL SAVINGS		10*#12 BTU		ļ				
CATEGORY	HATUBAL PETROLEUM PETROLEUM GAS DISTILLATE BOILER FUEL	PETROLEUM DISTILLATE	PETROLEUM EOILER FUEL	6AS	COAL DERIVED DISTILLATE	BOILER	COAL	OTHER SAVINS	TOTAL FUEL		
		1		:						:	
SITE PLUS UTILITY											
TOTAL ALL	14370	0	6082	0	•	•	15579	2197		•	
FUEL SAVINGS CASES ONLY	•	0	•	•	•	•	0	•		•	
COST SAVINGS CASES ONLY	0	0	•	•	•	•	•	•		•	
EMISSIONS SAVINGS CASE ONLY	14370	•	6082	•	•	•	15579	2197		•	
COST SAVINGS CASES	•	0	•	•	•	•	•	•		•	
FUEL, COST & EMISSION SAVING	0	•	•	•	0	•	•	•		•	
THOUGHIS COAL FUEL CONVERSION											
TOTAL ALL	14870	0	6082	0	0	•	15579	2197		•	
FUEL SAVINGS CASES ONLY	0	0	•	0	0	•	•	•		•	
WINGS CASES CHLY	0	0	n	c	•	•	•	•		•	
ENISSIONS SAVINGS CASE ONLY	14370	o	6092	0	•	•	15579	2197		•	
FUEL & COST SAVINGS CASES	0	0	0	•	0	•	•	•			
FUEL, COST & ENISSION SAVING	¢:	•	•	•	•	•	•	,		,	

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01 ⊕FCS SIZE (FM)	00.00	00.0	0.0	1.97*	0.00	0.00	် (၁	0.00	0.00	0.00	00.0	0.00	10.31	8.55*	00.0	0.00	0.00	00.00	00.6	7.34*	0.00	0.00	5.80*	10.60	
INGS  TOTAL	88665	23287	55558	43561	112632	116206	117856	429152	134528	661204	87467	177205	29446	37540	61551	28001	111687	797068	2964452	32541	4864582	135605	47590	54390	11184755 245068 201507 10939690 201507
EHISSIONS SAVINGS TONS PER YEAR	51337	16786	20256	83275	98163	96292	74301	218524	76864	540819	34273	159056	57565	78782	4463	22168	7532	16628	313958	16965	521814	79390	83446	100465	ិលព័ណព័ត
PUMP EMIS TONS PLANT	37327	1099	35301	-39713	14469	19914	43555	210628	57664	120385	53194	18149	-28119	-41242	10056	5833	104155	780461	5670494	-27152	4342768	56215	-40857	-46075	
*** STRATEGY HEAT PITAL EMISSIONS COST SAVINGS \$000 RATIO	0.000	0.00	0.000	0.425	0.000	000.0	000.0	000.0	000.0	0.000	0.000	0.000	0.401	0.348	0.000	000.0	0.000	000.0	0.000	0.334	000.0	000.0	0.334	0.339	
*** STRA Capital Cost \$000	0	c	0	2020199	0	0	0	0	0	•	•	0	762391	1344795	•	0	c	0	0	1173995	0	0	1502459	1822803	7 7 7 7
FB) SAVINGS DOLLARS \$000	0	0	0	-40542	•	9	0	0	•	•	•	•	37895	28388	0	•	•	0	•	57609	0	0	103125	72464	258939 258939 299481 299481 299481
ED, COALUF COST RATIO	0.000	0.000	000.0	-0.102	0.000	000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.135	0.067	00000	0.000	0.000	0.000	000.0	0.142	0.000	0.000	0.175	960.0	
CYCLE, DIRECT FIRED, COAL(PFB) GOTAL UTLLITY COST SAV UEL FUEL DO SAVINGS RATIO \$	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	437.4	74.2	82.6	93.8	2623 437 360 360 360
5 L T X	0.0	0.0	0.0	20.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6	14.7	0.0	0.0	0.0	0.0	0.0	17.6	0.0	0.0	26.0	7.60	1001
DOY, COMBINE COY, COMBINE FUEL ENERGY SAVINGS RATIO	u.000	0.000	0.000	0.19+	0.000	0.000	0.000	0.000	0.00.0	0.000	0.000	0.000	0.178	0.128	0.000	000.0	0.00.0	0.000	000.0	0.161	000.0	0.000	0.162	0.141	
CTAS CENERAL SUMMAR? - PROCESS LEVEL MO.25 ADVANCED TECHNOLOSY,CONDINED CYCLI FUEL ENERGY TOTAL SAVINGS FUEL RATIO SAVINGS	HO.01 HEAT PACKING	HO.02 BAKING	HO.03 MALT BEVERAGE	NO.04 KOVEN FAERIC MILL	10.05 SAW MILL	HO.OS HEUSPRINT MILL	HO.07 KRITIKS PAPER MILL	HO. 08 CORPUSATED PAPER	NO.09 SON BOARD	NO. 10 CHLORINE	NO.11 ALUMINA	NO.12 LOW DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	MO.15 STYRENE-BUT. RUB.	NO.16 NYLON	MO.17 STYPENE	из. 18 етиллене	HO. 19 PETROLEUM REFINING	HOLOO TIRES	NC.23 INTEGRATED WELL	HOLCH GRAY IRON FOUNDRY	нэ.25 соррев	KO.26 HOTOR VEHICLE	ALL MOS CASES CHLY MOS CACES CHLY SAVINGS CASE O ST EVERGS CASE & ENISSION SAV
	z	-	-			_						_		_		~	_		_			_	_	-	

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY

	07					
		16S  TOTAL	32010576 690354 606655 31320240 606655	_ <b>_</b>	329 289 269 0	32.9 32.9 2.89 0 0
		H CC	9794864 1343586 1183967 8451280 1183967	TOTAL DTHER FUEL SAVINGS	2197 62 58 2135 58 0	2197 62 58 2135 0
	T PUHP	EMIS TOP PLANT	22215696 -653235 -577112 22868944 -577112	COAL OT	13641 -324 -324 14165 -324	13841 -324 -324 14165 -324
	*** STRATEGY HEAT PUMP	30 30	23642672 23642672 19770336 19770336	/ED ATE BOILER FUEL	00000	00000
HARY	*	<b>∀</b> ∵	726052 2364 726052 2364 803763 1977 803763 1977	NGS SUMMARY - 10**12 BTU COAL DERIVED - DISTILLATE	00000	00000
NATIONAL SURMARY	CYCLE, DIRECT FIRED . COAL(PFB)	COST SAVINGS DOLLARS \$000	72 72 80	HATIONAL FUEL SAVINGS SUMMARY FUEL SAVINGS 10**12 BT UN PETROLEUM COAL DERI ATE BOILER GAS DISTILL FUEL	6082 143 126 5939 126 0	6062 143 126 5939 126 0
	DIRECT FIRE	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	9018 1255 1106 7763 1106	01E	00000	00000
		TOTAL FUEL SAVINGS 10**12 BTU	309 309 309 209 209 209	HATURAL PETR GAS DIST	14808 448 430 14360 430	14808 443 430 14360 430 0
	ICAR : 1770 IO.25 ADVANCED TECHNOLOGY, CONBINED	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST SAVINGS	CATEGORY	SITE PLUS UTILITY TOTAL TOTAL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL & COST & ENISSION SAVING	THOUDDING COAL FUEL CONVERSION 10TAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES ONLY FUELSCICHS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING

01 ECS SIZE (MM)	0.00	0.18*	00.00	2.05*	0.00	0.00	21.83	0.00	0.00	0.00	61.13	0.00	10.63	6.97*	0.00	4.21*	0.00	0.00	0.00	7.71*	0.00	0.00	*60.9	11.14	
NGS  TOTAL	86665	5547	55558	5002	112632	116206	35966	429152	134528	661204	8355	17,205	12987	33005	14519	5893	111687	797008	2984452	25117	4864582	135605	36603	41953	10509464 178192 181000 10693031 172644
EHISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16766	20256	83275	98163	26296	74301	218524	76664	540819	34273	159056	57565	78782	6955	22168	7532	16628	313958	26963	521814	79390	9546	100465	
PUMP EMIS TONS PLANT	37327	-11239	35301	-62315	69551	19914	-38335	210628	57664	120385	-25918	18149	-44578	-45777	10056	-16275	104155	780461	5670494	-34576	4342768	56215	-51843	-50512	. ⊸ <b>0</b> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
*** STRATEGY REAT PITAL ENISSIONS COST SAVINGS \$000	0.000	0.238	0.000	0.204	0.000	0.000	0.305	0.000	0.000	0.000	960.0	000.0	0.177	905.0	000.0	0.210	0.000	000.0	0.000	0.258	0.00.	0.000	0.257	0.262	i
*** STRA' CAPITAL COST \$000	•	668398	0	2296162	0	0	1101040	0	•	0	553281	0	661330	1197263	0	389142	0	0	0	1275158	0	0	1630136	1960487	। ਹਾਰਲ ਹ
AFD) SAVINSS DOLLARS \$000	0	-69922	0	-118437	0	0	104562	o	0	0	37012	0	6999-	53211	0	-5935	0	0	0	38377	0	0	76726	43524	5.57
ED,COALL COST RATIO	0.000	-0.489	0.000	-0.299	000.0	0.000	0.214	0.000	0.000	000.0	0.084	000.0	-0.024	0.126	0.000	-0.056	000.0	0.000	0.000	0.095	000.0	000.0	0.130	0.057	ı
DIRECT FIF UTILITY FUEL SAVINGS	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	437.4	74.2	82.6	93.8	2623 397 397 2055 365
SS LEVEL D CYCLE, IMD TOTAL U FUEL SAVINGS S	0.0	1.3	0.0	-3.6	0.0	0.0	18.5	0.0	0.0	0.0	-0.5	0.0	-4.2	15.3	0.0	-0.5	0.0	0.0	0.0	12.2	0.0	0.0	18.1	20.5	7.7.7.7.7.7.0.0.0.0.0.0.0.0.0.0.0.0.0.0
JAPY - PROCES GGY, CCL31BEF FUEL ENLRGY SAVINGS RATIO :	0.000	0.031	0.00.0	-0.034	0.00.0	000.0	0.166	000.0	0.00.0	000.0	-0.004	000.0	-0.055	0.133	000.0	-0.013	0.000	000.0	000.0	0.112	0.000	000.0	0.113	0.098	
CIAS GENERAL SUNNAPY - PROCESS LEVEL 10.26 ADVANCED TECHROLGGF,CCL,DIRLD CICLE,INDIRECT FIRED,COAL(AFD) FUEL ENURGY TOTAL UTLITY COST SAVI INDUSTRY SAVINGS FUEL FUEL ROLL SAVINGS SAVINGS RATIO \$0	NO.01 NEAT PACKING	NO.02 BAKINS	HO.03 HALT BEVERAGE	113.04 WOVEN FARRIC MILL	MO.05 SAN MILL	KO.06 NEWSPRINT MILL	HO.07 WRITING , APER MILL	HO. 08 CORNUSATED PAPER	40.09 BOX BOARD	NO.10 CHLOPINE	HO.11 ALUMINA	KOLIZ LOW DENS. POLYETHYL	110.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	MO.15 STYREME-BUT. RUB.	K3.16 N/LON	HO.17 STYRENE	RO.10 ETHYLENE	HO.19 PETROLEUM REFINING	NO.20 11RES	HO.23 INTCORATED STEEL	HOLDA GRAY IRON FOUNDRY	NO.25 COPPER	1:0107	FULL SAVINGS CACES ONLY COST SAVINGS CASES ONLY ENUSSIONS SAVINGS CASES FUCL 8 COST TAVINGS CASES FUEL 6 COST TAVINGS

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	SAVINGS FAR IY TOTAL					54 28541440		0
	ENISSIONS SAVINGS TOMS PER YEAR PLANT UTILITY TI		-			6899254		
*** STRATEGY HEAT PUMP	EMI: TOI PLANT	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	19874096	-1113011	-1360008	21642176	-1091468	•
*** STRATEG	CAPITAL COST \$000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	49438944	33939712	37969424	•	32236816	0
),COAL(AFB)	COST SAVINGS DOLLARS \$000	 	2113459	2006779	2524094	0	2140615	0
DIRECT FIREC	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU		9018	1746	2047	6467	1716	0
COMBINED CYCLE, INDIRECT FIRED, COAL(AFB)	TOTAL FUEL SAVINGS 10**12 BTU	8 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	422	456	645	0	454	0
YEAR: 1990 HO.26 ADVANCED TECHNOLOGY,C	CATEGORY		101AL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING

HATIOHAL FUEL SAVINGS SUMMARY

TOTAL FUEL	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		422	456	655	•	454	0		422	456	655	0	454	0
OTHER SAVINGS	i !		2197	26	46	2122	<del>,</del>	•		2197	23	46	2122	46	0
COAL FUEL			11409	-647	-1048	12647	-631	•		11409	149-	-1048	12647	-631	•
BOILER FUEL			0	0	0	0	0	0		0	0	•	0	•	0
10**12 BTU			0	0	•	•	0	0		0	0	•	0	0	•
10** COAL GAS DI			0	0	0	0	0	0		•	٥	0	•	0	0
FUEL SAVINGS   PETROLEUM E BOILER FUEL			6082	404	845	5185	655	0		6082	454	645	5185	655	0
FU TROLEUM STILLATE	!		-408	0	-403	•	0	0		-403	0	-409	0	0	0
HATURAL PETROLEUM GAS DISTILLATE	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		14779	290	1014	13685	590	0		14779	290	1014	13685	290	0
CATEGORY		SITE PLUS UTILITY	TOTAL ALL	FUEL SAVINGS CASES CHLY	COST SAVINGS C. SES CHLY	ENISSIGHS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUF , COST & ENISSION SAVING	INCLUDING COAL FUEL CONVERSION	TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSICH SAVING

01 ECS SIZE (HW)	00.0	0.21*	3.99	00.00	00.00	75.69	28.48	94.76	69.88	45.20	19.15	21.74	15.34	12.59	2.61	0.00	0.00	0.00	26.18	7.26	00.00	17.21	5.74	10.48	
.NGS  TOTAL	8.4839	22478	51470	100548	111149	110214	108836	404432	127687	597829	34160	174096	71242	103885	7090	27403	101012	717096	399292	64750	4664582	79396	95746	102203	6566978 2365227 0 8532810
EMISSIONS SAVINGS TONS PER YEAR UTLLITY TO	51337	16786	20256	83274	98163	96292	14301	218524	76864	540819	34273	159056	57565	78782	£955	22168	7532	16628	313958	59693	521814	79390	9558	100465	2820844 1583584 0 2786571 0
PUMP EMIS TOMS PLANT	33502	2695	31214	17273	12986	13922	34585	185909	50823	57010	-113	15040	13677	25103	2626	5235	93480	700469	85334	5058	4342768	•	6629	7738	5746131 501642 0 5746244
*** STRATEGY HEAT PITAL ENISSIONS COST SAVINGS \$000 RATIO	0.000	966.0	166.0	0.000	0.000	965	0.960	0.992	0.993	0.921	0.404	0.993	166.0	0.991	0.517	0.000	0.000	0.000	0.147	0.692	0.000	0.611	969.0	0.702	i
*** STRA' CAPITAL COST \$000	•	224723	518514	0	•	480632	627236	2433443	742878	2478244	247102	909428	487696	787502	68807	٥	•	0	3292146	766995	0	411046	266096	751024	15529506 14254506 15282405 0
LLATE SAVINGS COLLARS \$000	•	-26646	-65140	0	0	-35625	-46384	-172593	-39695	-135062	-52003	-183595	-133916	-230092	-5955	•	0	0	-284238	-43762	0	-72071	-57353	-105292	-1688410 -1324403 -1636407
EUN DISTI COST RATIO	0.000	-0.167	-0.247	0.000	0.000	-0.082	-0.095	-0.092	-0.067	-0.054	-0.118	-0.287	-0.477	-0.544	-0.082	000.0	000.0	0.000	-0.019	-0.108	0.003	-0.123	-0.038	-0.139	•
P.,PETROLE UTILITY FUEL SAVINGS	48.0	15.7	18.9	17.8	7.16	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	7.4.2	82.6	93.8	CI T O
55 LEVEL LL, LOH TEMP TOTAL U FUEL SAVIH3S S	0.0	7.1	10.3	0.0	0.0	27.6	6.82	112.1	37.6	158.3	1.1	18.4	-2.5	4.6-	2.0	0.0	0.0	0.0	174.4	14.6	0.0	12.9	21.6	54.4	1 + 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Y - FROCLE Y, FUEL CEI EL ENERGY SAVINGS RATIO	0.000	0.178	0.145	000.0	0.000	0.230	0.214	0.222	0.242	0.237	0.010	0.106	-0.033	-0.081	0.108	0.000	0.000	000.0	0.043	0.134	0.000	0.033	0.135	0.117	
CTAS GENERAL SUBBARY - FROCESS LEVEL HOLZ? ADVARCED TECHROLOGY,FUCL CELL,LOW TEMP.,PETROLEUM DISTILLATE FUEL EMERGY TOTAL UTILITY COST SAVIM INDUSTRY SAVIMS FUEL FUEL RATIO SAVIMSS SAVIMSS RATIO \$00L	NG.01 MEAT PACKING	NO.02 DAKING	NO.03 HALT BEVERAGE	HO.04 WOVEN FABRIC MILL	HO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 WRITING PAPER MILL	NO.08 CORFUGATED PAPER	1:0.09 BOX BOARD	KO.10 CHLOZINE	EO.11 ALUMINA	HO.12 LOW DENS. POLYETHYL	HO.13 HI DENS. POLYETHYL	HO.14 FOLYVINYL CHLORIDE	RO.15 STYRENE-EUT. RUB.	RO.16 HYLON	NO.17 STIPENE	NO.18 ETHYLENE	HO.19 PETROLEUM REFINING	HO.20 TIRES	NO.23 INTEGPATED STEEL	NO.24 GRAY IRON FOUNDRY	HOLES COPPER	H3A 601	TOTAL - ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL E COST SAVINGS CASES FUEL COST & FHISCICH SAVINGS

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUNIARY

07																									
	INGS R TOTAL	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	67	0 10 10 10 10 10 10 10 10 10 10 10 10 10	2576681	•	9			TAL FUEL	!		2303	2362	0	1622	0	•		2303	2362	0	2291	•	0
*** STRATEGY HEAT PUHP	ENISSIONS SAVINGS TONS PER YEAR PLANT UTILITY 7	1	9794864	7457989	9439754	•	•		TOTAL OTHER FUEI SAVINGS				2197	1460	•	2197	0	0		2197	1460	0	2197	0	0
	EMISS TOMS PLANT	1	16325882	2177412	16327055	0	0			COAL OTH				8164		15247	•	•		15579	8164	0	15247	0	•
		i							1 1 1 1 1 1 1	LER	1			0			0	0			0		0	0	o
	CAPITAL COST \$000		61054416	54689040 0	58494176	•	0	MARY	2 BTU	<u>س</u> م			0	0	0	0	0	•		0	0	0	0	0	0
FEAR : 1990 HO.27 ADVANCED TECHNOLOGY, FUEL CELL, LOW TEMP., PETROLEUM DISTILLATE	TOTAL UTILITY COST SAVINGS C FUEL FUEL DOLLARS SAVINGS SAVINGS \$000 10**12 BTU 10**12 BTU	;	-6961477	-5144464 0	-6422670	0	0	NATIONAL FUEL SAVINGS SUMMARY	10**12 BTU	GAS DIS			0	0	0	0	0	0		0	0	0	0	0	0
		1	'	1	,			NAL FUEL S	FUEL SAVINGS	PETROLEUM COILER FUEL			-1990	-4672	0	-1991	0	0		-1990	-4672	0	-1991	0	0
		) 	8106	6830	6687	0	0	NATIO		PETROLEUN P DISTILLATE			-9561	-8546	0	-8817	0	0		-9561	-8546	0	-8817	0	0
		* * * * * * * * * * * * * * * * * * * *	2303	2362	2291	0	0		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NATURAL PE GAS DI	1		14780	<b>2</b> 956	0	14357	0	0		14780	9365	0	14357	0	0
YEAR : 1990 NO.27 ADVANCED TECHNOLOGY,FUEL C	CATEGORY		TOTAL ALL	FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING			CATEGORY		SITE PLUS UTILITY	T01AL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ENISSICHS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING	THOUDING COAL FUEL CONVERSION	TOTAL ALL	FUEL SAVINGS CASES OHLY	COST SAVINGS CASES CHLY	ENISSIONS SAVINUS CASE CHLY	FUEL & COST SAVINGS CASES	FUEL, COST & LMISSION SAVING

FUEL	FUEL S SAVINGS	RATIO	00114RS \$000	\$000 \$000	SAVINGS RATIO	PLANT	TONS PER YEAR UTILITY	TONS PER YEAR UTILITY TOTAL	SIZE (MM)
0.0	43.0	0.000	0	•	0.000	37327	51337	88665	0.00
5.8	15.7	-0.299	96925-	314776	0.735	323	16736	17109	0.22#
7.1	18.9	-0.366	-96462	672935	0.640	15297	20256	35553	4.20
17.8	77.8	-0.300	-119102	903506	0.725	-8956	83274	74319	2.19
0.0	91.7	000.0	•	•	0.000	14469	98163	112632	0.00
0.22	4.14	-0.194	-84689	662882	0.715	-13255	36296	83037	80.33
19.2	59.1	-0.198	-97018	926926	0.683	6240	74301	80541	30.06
4.46	205.4	-0.186	-349850	3283241	269.0	78532	218524	297056	68.15
30.9	72.5	-0.170	-97583	987701	0.705	17971	76864	94835	73.72
167.0 4	99.1	-0.110	-273649	3336273	0.752	-43766	540818	497052	46.47
-0.7	32.0	-0.270	-119278	512447	0.441	4287	34273	38560	36.66
24.5	48.6	-0.277	-177011	1018665	0.727	-30305	159056	128751	18.91
10.3	53.7	-0.197	-55413	389165	0.608	-12881	57565	44684	6.43
14.5	73.7	-0.189	-79726	579145	0.573	-16949	78782	61833	6.90
1.7	4.5	-0.134	-9692	86428	0.355	691	4463	5154	2.75
4.2	20.7	-0.271	-28914	183858	0.711	-2272	22168	19896	4.71
0.0	7.0	0.000	0	0	0.000	104155	7532	111687	0.00
30.5	16.2	-0.024	-96922	821975	0.034	10829	16628	27457	9.74
263.7 2	93.3	0.007	100822	3060379	0.113	23266	313958	337225	19.26
14.4	55.8	-0.326	-131968	952104	0.685	7103	59693	96299	12.18
0.0	487.4	0.000	0	0	0.000	4342768	521814	4864582	0.00
12.9	74.2	-0.162	-90391	544120	0.435	-20359	79390	59032	17.21
2.82	82.6	-0.231	-136001	1086825	0.701	11440	95588	99886	8.73
29.9	93.8	-0.284	-215397	1513610	0.699	11568	100465	112053	16.54
ென்னைக்க	2623 293 293 1564 293		-2200931 -2031654 -2031654 -1292043 -1292043	21759064 21245016 3060379 14129792 3060879		4537541 34537 23266 4656234 23266	2820843 2107725 313958 1703503 313958	7356386 2142260 337225 6369708 337225	

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9001 - 0438			HALLONAL SUMMEN	SUMBER						
HO.28 ADVANCED TECHNOLOGY, FUEL	FUEL CELL,LOW TEMP,COAL DERIVED DIST	NP,COAL DE	RIVED DIST		**	*** STRATEGY HEAT PUMP	AT PUMP			
CATEGORY	TOTAL FUEL SAVINGS 10**12 BTU	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS SAVINGS 10**12 BTU 10**12 BTU	COST S	SAVINGS DOLLARS \$000	CAPITAL COST \$000		PLANT	MISS	IONS SAVIN PER YEAR UTILITY	CS  TOTAL
TOTAL ALL	2718	8106	; '	-10240172	87256112	; 2	2971888		• • • • • • • • • • • • • • • • • • •	18678104
FUEL SAVINGS CASES ONLY	2724			-9004320	91944609	1 6	124		4126186	A174195
COST SAVINGS CASES ONLY	503			193257	5667124	26	197	,	60113	466 396
EMISSIONS SAVINSS CASE ONLY	1699	7		1902019-	56679344	. 4	0541447	u	STORES	16841740
FUEL & COST SAVINGS CASES	505			193257	5367124	26	144	•	601799	966 399
FUEL, COST & ENISSION SAVING	505			193257	5867124		4		662109	646396
			NATIONAL FUEL SAVINGS SUMMARY	SAVINGS S	UMMARY					
CATEGORY	HATURAL P GAS D	 PETROLEUM DISTILLATE	FUEL SAVINGS PETROLEUM E BOILER FUEL	64S	10**12 BTU COAL DERIVED AS DISTILLATE	BOILER	COAL	OTHER SAVINGS	TOTAL FUEL	
		!		1				1		
SITE PLUS UTILITY										
TOTAL ALL	14775	-425	6082	0	-10358	-15365	15579	2197		2718
FUEL SAVINGS CASES ONLY	12401	-17	4636	0	-9608	-15365	8878	1497		2724
COST SAVINGS CASES ONLY	3732	0	1794	0	-552	-6778	950	1309		505
ENISSIONS SAVINGS CASE ONLY	14169	-455	5748	0	-6171	-14879	10955	2069		6691
FUEL & COST SAVINGS CASES	3782	0	1794	0	-552	-6778	950	1309		505
FUEL, COST & EMISSION SAVING	3782	0	1794	0	-552	-6778	950	1309		505
INCLUDING COAL FUEL CONVERSION	1 95 1	c	7.97	c	c	c	777	7016		č
A STOCK OF THE STO	10.1	•	ξ΄	•	> 1	•	C014	7617		00.
FUEL SAVITOS LASES URLY	9	0	0	0	0	0	-2052	1651		-554
COST SAVINGS CASES ONLY	•	•	0	0	•	0	-1556	1309		-246
ENISSIONS SAVINSS CASE ONLY	1951	0	747	0	0	0	4874	2069		-125
FUEL & COST SAVINGS CASES	0	0	0	0	0	0	-1556	1309		-246
FUEL, COST & ENISSION SAVING	0	0	0	0	•	0	-1556	1309		546

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01 ECS SIZE (HW)	0.00	0.23*	3.65	1.98	0.00	83.20	31.91	90.29	64.82	48.79	20.84	18.62	9.73	7.12	2.73	4.14	0.00	0.00	29.21	7.92	0.00	00.00	6.21	11.43	
NGS  TOTAL	84839	17910	35766	71322	111149	91344	87153	298397	95983	502221	27066	135912	49671	68686	5673	19401	101012	717096	321026	53724	4864582	129644	76950	40	8058507 2049937 593565 6870428 593565
ENISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83274	98163	36296	74301	218524	76964	540819	34273	159056	57565	78782	4463	22168	7532	16628	313958	59693	521814	79390	9558	100465	2045931 2045931 637310 1500316 637310
PUMP ENIS	33502	1124	15510	-11952	12986	8565-	12852	79874	19118	-38597	-7208	-23144	-7894	-10096	1210	-2767	93480	700469	7907	-5968	4342768	50453	9656-	-10677	5237662 -43545 -43545 -43545 -43545
*** STRATEGY HEAT PITAL EMISSIONS COST SAVINGS \$000 RATIO	0.000	0.792	0.639	0.709	0.000	0.800	0.769	0.732	95.10	9.774	0.320	0.775	169.0	0.655	0.413	0.708	0.000	0.000	0.118	0.574	0.000	0.000	0.576	0.583	1
CAPITAL COST 5000	0	293986	532393	648615	0	590757	771846	5494479	764313	300034	296612	873860	357266	532391	76892	143149	•	0	3826854	589905	0	•	719704	933059	86609 36099 8079 8079
SAVINGS DOLLARS \$000	0	-25774	-48767	-24546	0	6506	-3124	-83272	-16111	120072	-35009	-10715	-6242	-10930	-5333	-2305	•	•	-120199	-20934	0	0	-20018	65899-	1655 912 912 912
EUM DIST. COST RATIO	0.000	-0.180	-0.185	-0.062	000.0	0.021	-0.006	-0.044	-0.028	0.048	-0.079	-0.017	-0.022	-0.026	-0.074	-0.022	0.000	000.0	-0.003	-0.052	000.0	000.0	-0.035	-0.033	
P.,PETROL UTILITY FUEL SAVINGS	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.3	20.7	7.0	16.2	293.3	55.3	487.4	74.2	82.6	93.8	2623 1693 591 1364 1364 591
SS LEVEL L'HTCH TER TGTAL FUEL SAVINGS	0.0	9.0	14.5	29.3	0.0	42.1	36.3	135.5	43.9	237.6	6.7	55.6	20.7	29.1	5.6	9.1	0.0	0.0	229.7	23.5	0.0	0.0	34.8	39.3	943 643 643 643 643
IARY - PPGCE GY,FUEL CEL FUEL ENEEGY SAVINGS RATIO	0.000	0.226	0.203	0.272	0.000	0.351	0.326	0.268	0.253	0.355	0.060	0.319	0.271	0.253	0.137	0.261	0.000	0.000	0.056	0.215	0.000	0.00.0	0.217	0.123	
CTAS GENERAL SUTURARY - PPC NO.29 ADVANCED TECHOLGGY,FUEL C FUEL ENEE INDUSTRY SAVINGS RATIO	NO.01 NEAT PACKING	KO. 02 BAKINS	HO.03 HALT BEVERAGE	NO.04 WOVEN FABRIC MILL	HO. 05 SAW MILL	HO.06 HEWSPRINT MILL	HO.07 KRITING PAPER HILL	KO.08 CORRUGATED PAPER	KO.09 EOX BOARD	NO.10 CHLORINE	#0.11 ALUMINA	KO.12 LOW DEMS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.19 POLYVINYL CHLORIDE	NO.15 STYREME-BUT. RUB.	NO.16 NYLON	MO.17 STIREME	NO.13 ETHYLENE	NO.19 PETROLEUM REFININS	MO.20 TIPES	NO.23 INTECRATED STEEL	HO.24 GRAY IPON FOUNDRY	NO.25 COPPER	NO.26 MOTOR VEHICLE	<b>⋖</b> ທ ທ <del>1</del> 7

	ŭ ,	OGENERATIO	H TECHNOL	TECHNOLOGY ALTERN NATIONAL SUINARY	COSENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUMMARY					
YEAR : 1990 NO.29 ADVANCED TECHOLOGY,FUEL	EL CELL,HIGH TENP.,PETROLEUM DIST	IIP., PETROL	EUM DIST.		*** STRATEGY HEAT PUMP	HEAT PUMP				•
CATEGGRY	TOTAL FUEL SAVINGS 10**12 BTU	UTILITY FUEL SAVINGS 10**12 BTU	COST	SAVINGS DOLLARS \$000	CAPITAL COST \$000	PLANT	ENISSIONS SAVINGS TONS PER YEAR IT UTILITY TO	SAVING YEAR ITY	S  TOTAL	
	1	1	i		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
TOTAL ALL	3802	9018		-1220415	67993056	14127404			23922272	
FUEL SAVINGS CASES ONLY	3602			-1220415	67933056	121	123244 820	8206733	0329980	
COST SAVINGS CASES ONLY	1160	2482		404596	15729952	-160354		2647517	2487165	
EMISSICHS SAVINGS CASE ONLY	1770			-651833	34031952	14651048	-	4593990 1	19245040	
FUEL & COST SAVINGS CASES	1160			404596	15729952	-160354			2487165	
FUEL, COST & ENISSION SAVING	0			0	0			0	•	
		NATI	OPIAL FUEL	NATIONAL FUEL SAVINGS SUMMARY	UHHARY					
CAVEGORY	NATURAL PI	FU PETROLEUM DISTILLATE	FUEL SAVINGS I PETROLEUN E BOILER	10 CO GAS	10**12 BTU COAL DERIVED DISTILLATE EOILER	COAL	OTHER	TOTAL		
	:		FUEL	;	FUEL	FUEL	SAVINGS	į	!	
SITE PLUS UTILITY										
TOTAL ALL	14775	-8134	-1901	•		0 15579	2197	*	3802	
FUEL SAVINGS CASES ONLY	÷209	-6134	-4503	0			1419	2	3802	
COST SAVINGS CASES CHLY	280	-2017	111	•			0	=	1160	
EMISSIONS SAVINGS CASE ONLY	13553	-3876	-1530	0		_	2121	=	1770	
FUEL & COST SAVINGS CASES	623	-2017	=	00	0 0	2786	9 6	=	911	
	•	•	•	•					,	
TOTAL ALL	14775	-8134	-1901	o	0	0 15579	2197	2	3802	
FUCE SAVINGS CASES ONLY	47.09	-8134	-4503	•		9568 0	1419	. 2	3602	
COST SAVINGS CASES CHLY	230	-2017	111	•			•	Ξ	1160	
ENISSIONS SAVINGS CASE ONLY	13553	-35.76	-1530	0		-	2121	17	1770	
FUEL & COST SAVINGS CASES	280	-2017	111	0	•	0 2766	•	=	1160	
FULL, COST & ENISSION SAVING	0	0	0	•		•	•		0	

61 ECS SIZE (124)	0.00	0.17*	4:00	1.97	0.00	82.09	31.16	96.56	70.08	48.54	20.75	18.50	6.67	6.63	2.85	4.12	0.00	10.16	28.62	7.36	0.00	17.21	5.81	10.62	
HGS  TOTAL	98665	15064	34770	60599	112632	86507	84018	292897	93321	475019	24550	127014	46448	80409	5396	18162	111687	29623	304798	63407	4864582	90619	93164	105820	7289359 2112294 904405 6078533 906405 342879
EHISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83274	98163	26296	74301	518524	76864	540818	34273	159056	57565	78782	4463	22168	7532	16628	313958	26953	521814	79390	88446	100465	2141998 2141998 954496 1434653 964496 327366
PUNP EHIS	37327	1278	14514	-16366	14469	-9785	9717	74373	16457	-65800	-9724	-32043	-111117	1627	932	-3966	104155	12995	0916-	3715	4342768	-17484	4737	•	4469014 -29703 -60091 4644479 -60091 15493
STRATEGY HEAT IL EMISSIONS SAVINGS RATIO	0.000	0.776	0.626	0.653	0.000	9.744	0.713	0.683	969.0	0.718	0.281	0.717	0.632	0.745	0.372	0.649	0.000	0.037	0.102	159.0	0.1.0	V 57	0.654	0.661	i
*** STRAT CAPITAL E COST S	•	150321	523630	572176	•	517836	680186	2395868	739159	2715013	266138	759818	313530	381822	74169	126824	•	726617	3441855	455986	•	403475	552339	759954	16564743 1656474 1656474
T. SAVINGS CCLLARS \$000	•	-7203	-72387	-24451	•	6770	-2167	-183537	-52193	96167	-36766	-15436	-7924	50368	-3008	-3135	•	-79076	-115336	29617	0	-16246	50040	17642	-367760 -367760 -251204 -251353 -251204 149267
DER. DIST COST S RATIO	0.000	-0.050	-0.275	-0.062	0.000	0.016	-0.004	-0.098	-0.091	0.039	-0.083	-0.024	-0.028	0.119	-0.042	-0.029	0.000	-0.019	-0.008	0.073	0.000	-0.029	0.006	0.023	•
TEMP, COAL UTILLIY FUEL SAVINGS	43.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	149.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	437.4	74.2	82.6	93.8	2623 1939 696 11332 696 596 576
	0.0	9.6	8.8	4.92	0.0	30.3	33.4	109.1	34.6	215.6	5.0	49.5	16.5	43.0	2.8	7.2	0.0	33.4	216.1	34.7	0.0	5.5.4	51.2	57.9	1021 1021 4419 419 1031
	0.000	0.245	0.124	0.245	0.000	0.319	0.300	0.216	0.223	0.322	0.045	0.284	192.0	0.373	0.150	0.250	0.000	0.028	0.053	0.317	0.000	0.164	0.300	0.277	
CTAS GENERAL SURCIARY - FROCESS LEVEL HO.30 ADVANCED TECHNOLOGY, FUEL CELL, HIGH FUEL EMERGY TOTAL SAVINGS FUEL RATIO SAVINGS	NO.01 HEAT PACKING	HO.02 BAKING	NO.03 HALT BEVERAGE	NO.04 HOVEN FABRIC HILL	HO.05 SAW MILL	NO.06 REWSPRINT MILL	NO.07 WRITING PAPER MILL	NO.08 CORRUGATED PAPER	HO.39 COX COARD	HO. 10 CHLGRINE	NO.11 ALURIUA	NO.12 LOW DENS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLOSIDE	ED. 15 STIREME-BUT, RUB.	NO.16 NYLON	NO.17 STYFENE	HO.16 ETHYLENE	HO.19 PETROLEUM REFINING	NO.20 TIRES	NO.23 INTECPATED STEEL	NO.24 GRAY IPON FOUNDRY	NO.25 COPPER	OR VEHICLE	TOTAL ALL FUEL SAVINGS CASES CHLY COST SAVINGS CASES CHLY FUEL & COST SAVINGS CASE OHLY FUEL & COST SVITH'S CASES FUEL, COST & EHISSIOH SAVING

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY -

!!	AT PUMP	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TOTAL	6770851 9794864 18565712 -20363 8481497 8461129 -257056 3544134 3267076 9473825 473634 14210461 -257056 3544134 3287076 36371 896620 932991		TOTAL COAL OTHER FUEL FUEL SAVINGS	15670 2107 1863	1497	9	780	- 9,	960 46 506	2167	1407	777	ş	1 09/	200 00 000
	*** STRATEGY HEAT PURIP	CAPITAL COST \$000	66185184 66185184 19303104 35442944 19303104 5500417	JP16RY	COAL DERIVED DISTILLATE BGILER	-8467 -16112			•		-769 -208	•			<b>9</b> (		
TALLORAL SOUTH	DER. DIST.	COST SAVINGS BOLLARS \$000	-1762007 -1762007 769341 -1293648 769341 452394	HATIONAL FUEL SAVINGS SUPRIARY	FUEL SAVINGS 10** I PETROLEUM COAI E EOILER GAS DI	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			3595 0		105 0				o (		0
	FUEL CELL, HIGH TEMP, COAL DER. DIST.	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	3563 9018 3663 7791 1559 3520 1559 3520 506 838	HATIO	HURAL PETROLEUM PI GAS DISTILLATE	3097			7	651 0	371 0		0 (61		0		0
YEAR : 1990	NO.30 ADVANCED TECHNOLOGY, FUEL CELL	CATEGORY SA	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, CGST & ENISSION SAVING		N. VEY	SITE PLUS UTILITY	FIRST SAVERS CASES ONLY	COST SAVINGS CASES DALY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING	ILCLUDING COLL FUEL CONVERSION	IOIAL ALL	FUEL SAVINGS CASES GREY	COST SAVINSS CASES ONLY	EHISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES

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SIZE (ITH)	5 0.00	1 0.16*	00.00	00.00	25 0.00	96 0.00	90.00	00.00	90.00	. O. O.	18 18.86	00.00 50	99 0.00	15 6.96#	00.0 61	0.00	00.00	38 0.00	16 26.27	7.174	12 0.00	00.00 50	5 5.67#	0 10.35*	(ក្នេក្ស
IIIGS TOTAL	88665	20821	55558	16252	112632	116206	11785	429152	134528	661204	39418	177205	73508	95735	14519	28301	111687	797088	467206	73591	4864532	135605	108235	122890	######################################
EMISSIOMS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	63275	99163	26296	74301	218524	76564	540819	34273	159056	57565	78782	4463	22168	7532	16628	313958	59695	521814	79390	95458	100465	2020044 692603 675687 2020044 675687
EHIS TONS PLANT	37327	4035	35301	19246	14469	19914	43555	210628	57664	120385	5144	18149	15943	16953	10056	5833	104155	780461	153247	13598	4342768	56215	19768	22425	6127557 235491 231456 6127557 231456
PITAL ENISSICHS COST SAVINGS \$000 RATIO	0.000	0.894	0.000	0.000	0.000	0.000	0.000	0.00.0	0.000	0.000	0.451	0.000	0.000	0.858	0.000	0.000	0.000	0.000	0.157	0.755	0.000	0.000	0.760	19.767	
CAPITAL COST \$000	•	696137	•	•	•	•	•	•	•	•	\$ 94044	•	•	1576464	0	•	•	0	6173710	1555404	0	0	1954537	2492871	17145152 17145152 16447030 17145152 16447030
SAVINGS DOLLARS \$000	•	-34207	0	•	•	•	•	•	•	•	10876	•	•	95629	•	•	•	0	339965	14765	0	0	51133	3193	 
COST RATIO	0.000	-0.240	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025	0.000	0.000	0.125	0.000	0.000	0.000	0.000	0.026	0.036	0.000	000.0	0.087	0.00€	,
UTILITY FUEL SAVINGS	48.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	143.6	53.7	73.7	4.3	20.7	7.0	16.2	293.3	55.0	4.784	74.8	82.6	03.8	ମାର୍କ୍ତ ଅନ୍ତର ପାଙ୍କ ପ୍ରତ କ୍ରିକ ପ୍ରତ
TOTAL LEFUEL SAVINGS S	0.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	25.6	0.0	0.0	0.0	0.0	1.122	22.0	0.0	0.0	32.6	8.08	   ਜ਼ੁਰੂਆਰ   ਜ਼ਿਲ੍ਹਾ   ਜ਼ਿਲ੍ਹਾ 
FUEL CHERST SAVINGS RALIO S	0.000	0.163	000.0	000.0	0.030	0.000	0.000	0.000	0.000	0.000	0.354	0.000	0.000	0.222	0.000	0.000	0.000	0.000	0.034	202.0	0.000	0.0.0	0.253	0.176	ı
TICUSTRY FUEL CIRCUST TOTAL  FUEL CIRCUSTRY  FAVINGS FUEL  RATIO SAVINGS	HO. 01 HEAT PACKING	H3.02 BAF1H3	HOLOS MALT BEVEPAGE	HO.04 BOVEN FAERIC MILL	HO.05 SAW MILL	HO. CO NEUSFRINT MILL	HO. 07 LITTING PAPER MILL	NO.08 CCRPUSATED PAPER	HO. 09 EDY EDMED	HO. 10 CHLOTINE	HO.11 ALCHINA	HO.12 LGM DENS, FOLYETHIL	HO.13 HI DENS. POLYETHIL	RO.14 FOLYVINIL CHLOPIDE	RO.15 STYPERE-BUT, RUB.	ио. 16 ится	RO. 17 STIFFERE	NO.18 ETHYLERE	NO. 19 PETPOLEUM PEFINING	KO.20 TIPES	HO.23 THTEGRATED STEEL	KOLD4 CPAY IPON FOULDRY	POLDS COFFER	5	ALC 25 CHE S 1725 CAE S 1725 CAE SALTAS CAE SALTAS CAE

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - HATIONAL SURFIGNY

	EMISSIOMS SAVINGS TOMS PER YEAR T UTILITY TOTAL	979484 27651854 1865785 2438915 1651538 2399005 979464 27651856 1853530 2399005	TOTAL CTHER FUEL SAVJIKS	10	1368 611	_	1356 798 1356 798		1368 556	1356 543	2197 555	1356 543	
EAT PARE	₩,5	17856176 553212 545478 17856176 545478 545478	COAL CTHER	13196 2	-112		-107 1	12344 2	-962		12344 2		-957
*** STRATEGY HEAT PURP	CAP,TAL COST \$000	44267664 44267664 4293296 42933296 42933296	S SUPMARY  10**12 BTU COAL DERIVED DISTILLATE BOILER FUEL	0 -6915	9169- 0		0 -6915				0		<b>0</b>
HATIOHAL SUPPLARY	SAVINGS DOLLARS \$000	1197989 1197989 1263556 1197989 1263556 1263556	FUEL SAVINGS VINGS 10 LEUH CO ER GAS	0 2809	2301 0	6082	2296 <b>0</b>		43 0	37 0	3924 0	37 0	37 0
HATIONA HELD COAL GASTER	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU	811 9018 811 1762 793 1732 811 9018 798 1732	PETROLE	7	6031 K		7 -403 7 -403					3	
.FUEL CELL.HIGH	TOTAL FUEL SAVINGS 10**12 B	811 811 793 793 118 611 793 793	HATUPAL	79/7E	V584	+0/+T	4577	IGN 10315	101	103	10315	103	103
YEAR : 1920 13.31 ADVANCED TECHNOLOGY	CATEGORY	TOTAL ALL FORT SAVINGS CASES ONLY COST SAVINGS CASES ONLY FULSCIONS SAVINGS CASE ONLY FULL & COST SAVINGS CASES FULL COST & FILESICH SAVING	CATEGORY	SITE PLUS UTILITY TOTAL ALL	FUEL SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE ONLY	FUCL & CCST SAVINGS CASES FUEL, COST & EMISSION SAVINS	HVERS	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES CALY	ENISSICHS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	FUEL, COST & EMISSION SAVING

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91 ECS SIZE (HM)	0.00	0.24*	0.00	2.08	00.0	27.08	0.00	0.00	0.00	25.49	21.83	19.47	10.16	7.44	0.00	4.35	0.00	0.00	20.44	6.29	00.0	0 . 00	65.9	11.96	
165  TOTAL	<b>8866</b> 5	9435	55558	42908	112632	54974	117856	429152	134528	320094	12992	84142	30615	42098	14519	11619	111687	797088	175693	32553	4864582	135605	47572	•	7781120 919251 375067 6861871 375067
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83275	98163	96292	14301	218524	76864	540818	34273	159056	57565	78782	4463	22168	7532	16628	313958	59693	521814	79390	9558	100465	2020844 1651574 637110 1169272 637110
PUMP EMISON FLANT PLANT	37327	-7351	35301	-40367	14469	-41318	43555	210628	57664	-220725	-21281	-74914	-26950	-36684	10056	-10348	104155	780461	-138265	-27139	4342768	56215	-40674		4960270 -732326 -262043 5692593 -262043
*** STRATEGY HEAT PITAL ENISSIONS COST SAVINGS \$600 RATIO	0.000	90,405	0.000	0.419	0.000	0.473	0.000	0.000	0.000	0.484	0.149	0.475	0.416	0.390	0.000	0.422	0.000	0.000	0.059	0.334	0.000	0.000	0.334	0.339	į
CAPITAL ECOST SOOO	•	515391	9	1011664	•	750985	•	0	0	4131250	373329	1164515	477126	719352	•	203296	0	0	5307813	768895	0	•	961686	1271459	17656752 17656752 4632234 682234
CRADE SAVINGS DOLLARS \$000	0	-50848	0	-55909	o	7369	0	•	0	93584	-35928	-18939	-10015	-18015	0	-5646	0	0	-193768	-29445	0	0	-30577	-60289	-423475 -423475 -423475 105953 105953
EOILER COST 1110	0.000	-0.356	0.000	-0.141	0.000	0.017	0.000	0.000	0.000	0.040	-0.081	-0.030	-0.036	-0.043	000.0	-0.053	0.000	0.000	-0.013	-0.073	0.000	0.000	-0.052	-0.106	ı
COAL DERIVED UTILITY FUEL SAVINGS RA	43.0	15.7	18.9	77.8	91.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	4.764	74.2	82.6	93.8	2623 1533 1533 1005 1005 591
	0.0	5.7	0.0	22.5	0.0	33.9	0.0	0.0	0.0	202.3	3.9	45.6	17.1	24.0	0.0	6.5	0.0	0.0	199.3	19.4	0.0	0.0	23.7	32.4	1 1 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
GGT, STIRLTHE FUEL ENERGY SAVINGS RATIO	0.000	0.143	000.0	0.203	0.000	0.282	0.000	000.0	000.0	0.302	0.036	0.261	0.224	0.208	0.000	922.0	000.0	0.000	0.049	0.173	0.000	0.030	0.179	0.155	
HO.32 ADVANCED TECHNOLGGG,STIRLING ENGINE FUEL ENERGY TOTAL SAVINGS 1UCL RATIO SAVINGS	NO.01 HEAT PACKING	NO.02 BAKING	HO.03 HALT BEVERAGE	HO. ON MOVEN FABRIC MILL	HO.05 SAW HILL	NO.06 HEWSPRINT MILL	HO.07 ERITING PAPER MILL	NO.03 CORRUGATED PAPER	KO.09 BOX EOARD	HO. 10 CHLORINE	RO.11 ALUNINA	KO.12 LOW DENS. POLYETHYL	HO.13 HI DEMS. POLYETHYL	HO.14 POLYVINYL CHLORIDE	110.15 STYRENE-BUT. RUB.	NO.16 NYLON	NO.17 STIRENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	NO.23 INTEGRATED STEEL	HO.24 GRAY IRON FOUNDRY	KOLES COPPER	HO.26 NOTOR VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES CHLY ENTSSICHS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST SAVINGS CASES

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HO.32 ADVANCED TECHNOLOGY, STIR	TRLING ENGINE, COAL DERIVED BOILER GRADE	COAL DERIV	ED BOILER	GRADE	S ***	*** STRATEGY HEAT PUMP	AT PUMP				0
CATEGORY	TOTAL UTILITY FUEL FUEL SAVINGS SAVINGS 10**12 BTU 10**12 BTU	UTILITY FUEL SAVIHSS   10**12 B1	COST	SAVIKGS DOLLARS \$000	CAPITAL COST \$000		PLANT	w 7	SAVINGS YEAR . TY ]	S  TOTAL	
TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING	2049 2049 2049 2049 958	9018 5459 2469 3559 1462	i	-1149374 -1149374 -1149374 331284 0	55864560 55864560 20453264 20453264	. 004040	13874807 -2638391 -1110525 16513208 -1110525	07 9794864 01 5834849 25 2647517 08 3960017 25 2647517	1	23669680 3196453 1536993 20473216 1536993	
		NAT	NATIONAL FUEL SAVINGS SUMMARY	SAVINGS SI	UMMARY						
CATEGORY	NATURAL PETR GAS DIST	OLEUM ILLAT	PETROLEUM PETROLEUM DISTILLATE BOILER FUEL	GAS CO	COAL DERIVED DISTILLATE	E BOILER FUEL	COAL	OTHER SAVINGS	TOTAL FUEL	!	
SITE PLUS UTILITY TOTAL ALL	14779	805-	6082	0	•	-12883	15579	2197	2049	•	
FUEL SAVINGS CASES ONLY	5005	-408	2594	0 (	•	-12883	6343	1397	2049	6.6	
COST SAVINGS CASES ONLY ENTSSIONS SAVINGS CASE ONLY	9275	9 0	3483	- c	<b>-</b>	0552-	95.76	799	¥.	75G	
FUEL & COST SAVINGS CASES	280	•	223	•	0	-2330	2786	0	<u>ن</u>	938	
FUEL, COST & EMISSION SAVING	0	•	•	•	0	•	•	0		•	
INCLUDING COAL FUEL CONVERSION TOTAL ALL FUEL SAVINGS CASES ONLY	9775	90	3488	90	00	000	7448	2197	- 390	22	
COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING	97779	0000	3438	0000	000	0000	175 9236 175 0	799	A 4	175 0 0	

01 ECS SIZE (154)	0.00	0.24#	2.64	2.08	0.00	28.49	21.59	25.51	23.00	15.51	21.12	19.54	10.16	7.42	2.94	4.35	0.00	0.00	69.92	8.17	0.00	0.00	24.9	11.80	
HGS  TOTAL	88665	5380	3245	32054	112632	45117	37078	100344	35935	263469 2	8883 2	68224 1	24039	32407	1855	8995	111687	797088	76362	24618	4864582	135605	35814	42243	6956521 834135 805584 6110258 796702
EHISSICHS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83275	98163	96292	74301	218524	76864	540818	34273	159056	57565	78782	4463	22168	7532	16628	313958	26965	521814	79390	98446	100465	2820644 1991452 1925565 774864 1091392
PUMP ENIS: TONS PLANT L	37327	-11406	-17010	-51221	14469	-51174	-37223	-118180	-40929	-277350	-25391	-90832	-33526	-46374	-2608	-13173	104155	780461	-237596	-34875	4342768	56215	-52632	-58222	4135671 -1157320 -1120083 5335394 -1094694
STRATEGY HEAT NL EMISSIONS F SAVINGS P RATIO	0.000	0.231	0.058	0.313	0.000	0.388	0.315	0.234	0.267	0.398	0.102	0.385	0.327	0.300	0.128	0.321	0.000	0.000	920.0	0.255	0.000	0.000	0.251	0.264	1
*** STRAT CAPITAL E COST S	•	695108	1046187	1567667	•	932902	1199019	3970437	1258730	4966993	463588	1437027	634889	972334	151016	292700	•	0	6387511	1032446	•	•	1305686	1659527	299736"0 28463936 26664768 26564768
SAVINGS DOLLARS \$000	0	-56210	-29166	-32573	0	71890	74843	305357	89867	478426	39381	78661	35919	53510	6892	7465	0	•	5302725	46658	0	0	18258	90165	C1 → C
COST RATIO	0.000	-0.394	-0.111	-0.082		0.165	0.153	0.163	0.156	0.193	0.089	0.123	0.128	0.127	0.095	0.070	0.000	0.000	0.360	0.115	0.000	0.000	0.143	0.065	•
OAL(AFB) UTILITY FUEL SAVINGS	48.0	15.7	18.9	77.8	91.	4.16	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.0	407.4	74.2	95.6	93.8	2623 1847 1756 725 1754
SS LEVEL 3 ENGINE,CO TOTAL U FUEL SAVINGS S	0.0	1.0	-0.7	10.4	0.0	23.7	19.6	64.8	22.3	143.6	4.0-	28.8	6.6	13.3	1.3	3.4	0.0	0.0	75.4	10.9	0.0	0.0	15.7	19.3	0 0 0 0 0 0 0 0 0 0 0
ARY - PROCES OGY,STIRLING FUEL ENERGY SAVINGS RATIO	000.0	9:0:0	-0.010	0.097	0.000	0.193	0.177	0.128	0.144	0.215	-0.003	0.165	0.130	0.116	0.070	0.113	0.000	0.000	0.018	0.100	0.000	0.000	0.093	0.092	
CTAS GENERAL SUMMARY - PROCESS LEVEL NO.33 ADVANCEO TECHNOLGGY,STIRLING ENGINE,COALIAFB FUEL ENERGY TOTAL UTILITY SAVINGS FUEL FUEL RATIO SAVINGS SAVINGS SAVINGS	NO.01 HEAT PACKING	HO. 02 BAKING	NO.03 MALT BEVERAGE	HO.04 HOVEN FABRIC MILL	NO.05 SAW MILL	NO.06 NEWSPRINT MILL	NO.07 WRITING PAPER MILL	NO.08 CORRUGATED PAPER	NO.09 BOX BOARD	NO.10 CHLORINE	NO.11 ALUMINA	NO.12 LOW DERS. POLYETHYL	NO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	NO.15 STYPENE-BUT. RUB.	HO.16 HYLON	110.17 STYRENE	NO.18 ETHYLENE	HO.19 PETROLEUM REFINING	NO.20 TIRES	MO.23 INTEGRATED STEEL	HO.24 GRAY IRON FOUNDRY	NO.25 COPPER	VEHICLE	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & EMISSION SAVING

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07		•														
	HGS TOTAL	19792704 19792704 3473014 16240927 3381760		FUEL	1	1855	1860	+607	1838	0	1855	1860	1834	•	1838 0	•
	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	9794866 7812800 7976114 1588130 7621004		TOTAL OTHER FUE SAVINGS	! ! ! !	2197	1410	545	1393	•	2197	0161	1393	777	1393	•
PUMP	EMISS TONS PLANT	9997645 -4359262 -4502294 14652794 -4239217		COAL OTH				£259-	-6148	0	-2061		-8563	6633	-8148	•
*** STRATEGY HEAT PUMP		•		LER	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	•		•	,		9		•		, 0 0	•
*** STRA	CAPITAL COST \$000	112474928 105664304 106132288 101329008	MARY	104412 BTU COAL DERIVED DISTILLATE BOI FU		•	0 (	<b>-</b>	• 0	0	c			•	00	•
- XX	SAVINGS C. DOLLARS \$000	16477404 16125278 16703490 16295459	HATIONAL FUEL SAVINGS SUMMARY	104#1 COAL   GAS DIS	!	0	0 (	<b>5</b> C	•		c		• •	0	00	•
MAI LUKAL SURIAR	COST SA	444 4	NAL FUEL S	FUEL SAVINGS I PETROLEUM E BOILER FUEL	 	6062	3055	22.50	3032	0	6082	3055	3428	2602	3032	>
JAL (AFB)	DIILITY FUEL SAVINGS 10**12 BTU	7162 7162 7314 1489 6982	HATIO	OLEUM ILLAT	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	-425	-17	1 2 3 3	-17	•	1 0 1	-17	-425	0	-17	>
IRLING ENGINE,COAL(AFB)	TOTAL L FUEL SAVINGS :	1855 1860 1814 0 1838 0		NATURAL PETR GAS DIST	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	14775	9653	1009	5578	0	36291	55.46	6001	8702	5578	>
YEAR : 1990 NO.33 ADVANCED TECHNOLOGY,STIRLI	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY EMISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL & COST & EMISSION SAVING		CATEGORY		SILE PLUS ULLILI TOTAL ALL	FUEL SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ENISSICHS SAVINGS CASE UNLT ENIST & COST SAVINGS CASES	FUEL, COST & ENISSION SAVING	INCLUDING COAL FUEL CONVERSION	FIRE SAVINGS CASES ONLY	COST SAVINGS CASES ONLY	ENISSIONS SAVINGS CASE ONLY	FUEL & COST SAVINGS CASES	LUCELICUSI & CHILDSIOI CATAING

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- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - MATIONAL SURMARY

HATIONAL FUEL SAVINGS SUMMARY	OILER GRADE *** STRATEGY HEAT PUMP		AR 7 TOTAL 7 TOTAL 9 33232860 0	TONS PER YE.  UTILITY  UD 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	UE : ~ ~ ~				6082 6082 6082 6082 6082	DISTILLATE  0 0 0 0 0	<u>.</u>
БЕТВОЦЕИ         COAL DERIVED         TOTAL           POTLER         GAS         DISTILLATE BOILER         COAL         OTHER         FUEL           FUEL         FUEL         FUEL         SAVINGS           FUEL         FUEL         SAVINGS           FUEL         FUEL         SAVINGS           6082         0         0         0           0         0         0         0           0         0         0         0           0         0         0         0           0         0         0         0           0         0         0         0           0         0         0         0           0         0         0         0           0         0         0         0           0         0         0         0           0         0         0         0	COST SAVINGS CAPITAL ENTSSICHS SAVIN 5000 \$000 PLANT UTILITY FOR PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT PLANT UTILITY PLANT PLANT UTILITY PLANT P	COST SAVINGS CAPITAL EMISSIONS SAVIN 100 COST SAVINGS CAPITAL COST PLANT UTILITY PLANT UTILITY PLANT UTILITY TO COST SAVINGS CAPITAL COST PLANT UTILITY TO COST COST COST COST COST COST COST C	0	2197	15579	0	6	0	6082	0	
HOEL SAVINGS 10**12 BTU TOTAL BOILER GAS DISTILLATE BOILER COAL OTHER FUEL FUEL FUEL SAVINGS FUEL FUEL SAVINGS  6082 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	COST SAVINGS CAPITAL ENTSSICHS SAVIN 5000 \$000 PLANT UTILITY FOR PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT PLANT UTILITY PLANT PLA	VINGS CAPITAL EMISSIONS SAVIN 5000 \$000 \$ PLANT UTILITY FOR PLANT UTILITY TOTAL \$000 \$ PLANT UTILITY TOTAL \$000 \$ PLANT UTILITY \$000 \$ PLANT UTILITY \$000 \$ PLANT UTILITY \$000 \$ PLANT UTILITY \$000 \$ PLANT PLANT UTILITY \$000 \$ PLANT PLA	0	2197	15579	•	0	0	6082	0	
HOEL SAVINGS 10**12 BTU	COST SAVINGS CAPITAL ENTSSICHS SAVIN 5000 \$000 PLANT UTILITY FORD 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	VINGS CAPITAL EHISSIGHS SAVIN 5000 \$000   23436048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	•	4	1	•	•				
Note	COST SAVINGS CAPITAL ENTSSICHS SAVIN 5000 \$000 C3438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	VINGS CAPITAL EHISSIGHS SAVIN 5000 \$ COST \$ TONS PER YEAR \$000 \$ \$000 \$ 23436046 \$ 9794664 \$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0									
TOTAL   TOTA	COST SAVINGS CAPITAL ENTSSICHS SAVIN 5000 \$000   PLANT UTILITY FOR SOUTH SAVIN UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT PLANT UTILITY PLANT PLANT UTILITY PLANT P	VINGS CAPITAL ENISSIGHS SAVIN COST SOLO SOLO SOLO SOLO SOLO SOLO SOLO S	•	•	0	0	0	•	0	0	_
USEL SAVINGS       10**12 BTU       TOTAL         PETROLEUM       COAL DERIVED       TOTAL         BOILER       GAS       DISTILLATE BOILER       COAL OTHER FUEL         FUEL       FUEL       SAVINGS         FUEL       FUEL       SAVINGS         6082       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0	COST SAVINGS CAPITAL ENTSSICHS SAVIN 5000 \$000 PLANT UTILITY \$000 0 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	VINGS CAPITAL COST COST COST COST COST COST COST COST	•	0	0	0	•	0	0	_	0
DET SAVINGS 10**12 BTU	COST SAVINGS CAPITAL ENISSICHS SAVIN 5000 \$000 PLANT UTILITY \$000 0 0 23438048 9794864 0 0 0 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	VINGS CAPITAL TONS PER YEAR \$000 \$000 \$000 \$000 \$000 \$000 \$000 \$0	0	2197	15579	•	0	0	6082		0
DET SAVINGS 10**12 BTU	COST SAVINGS CAPITAL EMISSICHS SAVIN 5000 \$000 PLANT UTILITY \$000 0 0 23438048 9794864 0 0 0 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	VINGS CAPITAL EHISSIONS SAVIN COST TONS PER YEAR \$000 COST PLANT UTILITY UTILITY COST PLANT UTILITY UTILITY COST COST PLANT UTILITY COST COST COST COST COST COST COST COST	•	>	•	•	•	•	>		>
10**12 BTU TOTAL GAS DISTILLATE BOILER COAL OTHER FUEL FUEL SAVINGS  0 0 0 15579 2197	COST SAVINGS CAPITAL ENTSSICHS SAVIN 5000 \$000 PLANT UTILITY \$000 0 0 23438048 9794864 0 0 0 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	VINGS CAPITAL EHISSIOHS SAVIN COST COST PLANT UTILITY PLAN	•	•	-	•	c	-	•		c
GAS DISTILLATE BOILER COAL OTHER FUEL FUEL SAVINGS FUEL SAVINGS OF 0 15579 2197	COST SAVINGS CAPITAL ENTSSICHS SAVIN 5000 \$000 PLANT UTILITY \$000 0 0 23438048 9794864 0 0 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	### STRATEGY HEAT PUMP  VINGS CAPITAL TONS PER YEAR  \$000 \$000 PLANT UTILITY  0 0 0 0 0 0 0  0 0 0 0 0  0 0 0 0 0  AVINGS SUPPRARY  COAL DERIVED  TOTAL  TO	0	0	•	9	0	0	0		0
TOTA  CAS DISTILLATE BOILER COAL OTHER FU  FUEL FUEL SAVINGS	COST SAVINGS CAPITAL EMISSICHS SAVIN 5000 \$000 PLANT UTILITY \$000 0 0 23438048 9794864 0 0 0 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	*** STRATEGY HEAT PUMP  VINGS CAPITAL  COST  \$000  \$000  COST TONS PER YEAR  *** STRATEGY HEAT PUMP TONS PER YEAR  *** STRATEGY HEAT PUMP TONS PER YEAR  *** STRATEGY HEAT PUMP TONS PER YEAR  *** STRATEGY HEAT PUMP TONS PER YEAR  *** STRATEGY HEAT PUMP	•	2197	15579	0	0	0	6082		٥
10**12 BTU	COST SAVINGS CAPITAL EMISSIONS SAVIN 5000 \$000 PLANT UTILITY \$000 0 23438048 9794864 0 0 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	*** STRATEGY HEAT PUMP  VINGS CAPITAL TONS PER YEAR \$000 \$000 PLANT UTILITY  0	•			•	•	•	600		ć
	COST SAVINGS CAPITAL EMISSICHS SAVIN 5000 \$000 PLANT UTILITY PLANT UTILITY PLANT UTILITY PLANT UTILITY O 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	*** STRATEGY HEAT PUMP  VINGS CAPITAL EHISSIGHS SAVIN  SOLO \$000 PLANT UTILITY  O 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NAL FUEL	TO OTHER SAVINGS	COAL	!		1	FUEL		
	COST SAVINGS CAPITAL EMISSICHS SAVIN \$000 \$000 PLANT UTILITY \$000 0 23438048 9794864 0 0 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	*** STRATEGY HEAT PUMP  VINGS CAPITAL  COST  \$000  \$000  COST  TONS PER YEAR  \$000  \$000  COST  TONS PER YEAR  \$000  COST  TONS PER YEAR  \$000  COST  TONS PER YEAR  \$000  COST  TONS PER YEAR  COST  TONS PER YEAR  COST  CO				BOILER	U VED ATE	AVINGS SU	HAL FUEL S L SAVINGS ETROLEUM BOILER	5 3	MATURAL PETROLEUM
	COST SAVINGS CAPITAL EMISSICHS SAVIN 5000 \$000 PLANT UTILITY 1000 0 0 23438048 9794864 0 0 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	*** STRATEGY HEAT PUMP VINGS CAPITAL COST \$000 \$000 PLANT UTILITY  0 0 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				BOILER	U VED ATE	AVINGS SU	NAL FUEL S L SAVINGS ETROLEUM BOILER	2 5	016
	COST SAVINGS CAPITAL EMISSICHS SAVIN 5000 \$000 PLANT UTILITY 1000 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	*** STRATEGY HEAT PUMP VINGS CAPITAL EHISSIGHS SAVIN 5000 \$000 PLANT UTILITY  0 0 0 23436048 9794664 0 0 0 0 0 0			234380	0 0 0 0 0 0 0 0 0 0	U VED ATE	AVINGS SU 10**	MAL FUEL S L SAVINGS ETROLEUM BOILER	2 3	016
0 0 23438048 9794864 0 0 0 0 0 0 0 0	COST SAVINGS CAPITAL EMISSICHS SAVIN DOLLARS COST TONS PER YEAR \$000 \$000 PLANT UTILITY	*** STRATEGY HEAT PUMP VINGS CAPITAL EHISSIOHS SAVIN 50100 \$000 PLANT UTILITY  *** STRATEGY HEAT PUMP				0 0 0 EDILER FUEL	U VED ATE	AVINGS SU	HAL FUEL S L SAVINGS ETROLEUM BOILER	2 5	9
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	COST SAVINGS CAPITAL EMISSICHS SAVIN  DOLLARS COST TONS PER YEAR  \$000 \$000 PLANT UTILITY  TONS PER YEAR  \$000 0 23438048 9794864	VINGS CAPITAL EMISSIONS SAVIN OLLARS COST TONS PER YEAR \$000 \$000 PLANT UTILITY  0 0 23438048 9794864	•	•		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	U VED ATE	AVINGS SU	HAL FUEL S L SAVINGS ETROLEUM BOILER	2 5	9
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	COST SAVINGS CAPITAL EMISSIONS SAVI DOLLARS COST TONS PER YEAR \$000 \$000 PLANT UTILITY	*** STRATEGY HEAT PUMP VINGS CAPITAL EMISSIONS SAVI OLLARS COST TONS PER YEAR \$000 \$000 PLANT UTILITY				0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	U ATE	AVINGS SU	NAL FUEL S L SAVINGS ETROLEUM BOILER	2 5	9
0 0 0 23438048 9794864 0 0 0 0 0 0 0 23438048 9794864 0 0 0 0 0	COST SAVINGS CAPITAL EHISSIONS SAVING DOLLARS COST TONS PER YEAR \$000 \$000 PLANT UTILITY	*** STRATEGY HEAT PUMP VINGS CAPITAL EMISSIONS SAVING OLLARS COST TONS PER YEAR \$000 \$000 PLANT UTILITY			234380	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	U ATE	AVINGS SU	HAL FUEL S L SAVINGS ETROLEUM BOILER	2 5	9 9 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
0 0 0 0 23438048 9794864 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			ξ.	TONS PER YE UTILITY	234380	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	U VED	AVINGS SU	HAL FUEL S L SAVINGS ETROLEUM BOILER	or rock	**1 6 6

OI ECS SIZE (IM)	00.0	0.00	00.0	2.35	0.00	73.40	0.00	0.00	00.0	50.97	39.94	21.32	13.53	10.83	0.0	5.30	0.00	0.00	00.0	13.37	0.00	0.00	9.45	18.16	
INGS  TOTAL	80665	23287	55558	-14804	112632	40271	117856	429152	134528	194489	-5285	30174	4536	- 95	14519	557	111687	797088	2984452	3322	4864582	135605	10166	207	10149964 234760 9365610
EMISSIONS SAVINGS TONS PER YEAR UTILITY TO	51337	16786	20256	83274	93163	26295	74301	218524	76864	540318	34273	950651	57565	78782	4463	22168	7532	16628	313958	59693	521814	79390	88446	100465	2020843 637110 1500016
PUMP EHIS TONS PLANT	37327	6501	35301	-98079	14469	-56021	43555	210628	57664	-346329	-39558	-128883	-53329	-78877	10056	-21611	104155	780461	2670494	-55871	4342768	56215	-78260	-83658	7329116 -402350 8369593
*** STRATEGY HEAT PITAL EHISSIONS COST SAVINGS \$000 RATIO	0.000	0.000	0.000	-0.144	0.000	0.347	0.000	0.000	0.000	0.294	-0.060	0.170	0.058	-0.001	0.000	0.020	0.000	0.000	0.000	0.039	0.000	0.000	0.071	0.105	
*** SIRA CAPITAL COST \$000	•	•	•	2268369	•	886710	•	•	•	5612333	874654	1938496	975510	1555941	0	417090	•	•	•	1757333	•	•	2063916	2710529	21060364
FIG.) SAVINGS DOLLARS \$000	•	٠	0	-455394	•	-54087	•	0	0	-539379	-170819	-327997	-179072	-296265	•	-78578	•	0	0	-260219	•	•	-308692	-390625	-3061111 -593465 0 0
COUP.CONFIG.) COST SAVIN DOLL RATIO \$00	000.0	0.000	0.000	-1.143	0.000	-0.124	0.000	0.000	0.000	-0.217	-0.336	-0.513	-0.638	-0.701	0.000	-0.737	000.0	0.000	0.000	-0.642	000.0	0.000	-0.525	-0.516	•
DER. B.G. UTILITY FUEL SAVINGS	45.0	15.7	18.9	77.8	41.7	91.4	59.1	205.4	72.5	499.1	32.0	148.6	53.7	73.7	4.2	20.7	7.0	16.2	293.3	55.8	487.4	74.2	82.6	93.8	2623 2591 1394 0
	0.0	0.0	0.0	-57.4	0.0	13.2	0.0	0.0	0.0	30.5	-21.4	-29.1	-19.4	-34.5	0.0	-9.0	0.0	0.0	0.0	-20.4	0.0	0.0	-23.1	-19.5	
IARY - PROCE CGY, THEBNICO FUEL ENERGY SAVINSS RATIO	0.000	0.000	000.0	-0.533	0.000	0.110	0.000	0.000	0.000	9+0-0	-0.192	-0.167	-0.254	-0.300	0.000	-0.313	000.0	0.000	000.0	-0.186	0.000	0.000	-0.144	+60.0-	
CTAS GENERAL SUMMARY - PROCESS LEVEL MO.35 ADVANCED TECHNOLGGY,THERMICHIGS,COAL FUEL ENERGY TOTAL SAVINSS FUEL SAVINGS FUEL RATIO SAVINGS	HO.01 HEAT PACKING	HO.OZ BAKING	KO. 03 MALT BEVERAGE	HO.04 WOVEN FABRIC HILL	NO.05 SAW MILL	HO.O. NEWSPRINT MILL	NO.07 WRITING PAPER HILL	HO.08 CORRUGATED PAPER	110.09 BUX BOAPD	HO.10 CHLORINE	RO.11 ALUHINA	HO.12 LOW DENS. POLYETHYL	HO.13 HI DENS. POLYETHYL	NO.14 POLYVINYL CHLORIDE	HO.15 STYRENE-GUT. RUB.	KO.16 HYLON	NO.17 STYRENE	NO.18 ETHYLENE	NO.19 PETROLEUM REFINING	NO.20 TIRES	HO.23 INTEGRATED STEEL	HO.24 GRAY IPOH FOUNDRY	NO.25 COPPER	MO.26 HOTOR VEHICLE	ALL 565 C 55 C 55 V 55 V 8 EH

- COGENERATION TECHNOLOGY ALTERNATIVES STUDY - NATIONAL SUBJARY

04					
	165  TOTAL	27424896 1035940 26233496	OTAL FUEL	-636 -636 -646 -646	-3239 -616 0 0
	EMISSIONS SAVINGS TONS PER YEAR PLANT UTILITY TO	9794664 2647517 0 4593990 0	TOTAL OTHER FUE SAVINGS	2197 0 0 2121 0	2197 - 0 2121 0
PUMP	EMIS TON PLANT	17630016 -1611579 0 21644496	COAL OT	15579 2786 0 10216 0	6901 -816 0 10216 0
*** STRATEGY HEAT PUMP	·		BOILER FUEL	-7664 -3024 0 0	00000
11S ***	CAPITAL COST \$000		VED ATE	00000	000000
OMP. CONFIG. )	SAVINGS DOLLARS \$000	-10841297 -2017157 0 0	SAVINGS	99999	• • • • • •
(COMP.COM	COST	<b>i</b>	TIONAL FUEL S FUEL SAVINGS PETROLEUM E BOILER FUEL	6082 223 0 5288 0	5268 0 5268 0
DER. B.G.	TOTAL UTILITY FUEL SAVINGS SAVINGS 10.*12 BTU 10**12 BTU		OLE 11.	804 0 0	00000
MIONICS,COAL	TOTAL FUEL SAVINGS 10:*12 BTU	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	NATURAL PETR GAS DIST	14008 250 0 13586 0	13586 0 0 13586 0
YEAR : 1990 NO.35 ADVANCED TECHNOLOGY, THERMIONICS, COAL DER. B.G. (COMP.CONFIG.)	CATEGORY	TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL, COST & ENISSION SAVING	CATEGORY	SITE PLUS UTILITY TOTAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSIONS SAVINGS CASE ONLY FUEL & COST SAVINGS CASES FUEL & COST SAVINGS CASES	INCLUDING COAL FUEL CONVERSION  10TAL ALL FUEL SAVINGS CASES ONLY COST SAVINGS CASES ONLY ENISSICHS SAVINGS CASE ONLY FUEL & COST SAVINGS CASE FUEL & COST SAVINGS FUEL & COST SAVINGS

## TABLE VI-7 SUMMARY RESULTS BOTTOMING APPLICATIONS

	<del>.</del>	ECS	SIZE	3	0.34*	0.434
		VINGS ECS	1	TOTAL	7350	9703
		SSIONS SAVI	IS PER YEAR	DLANT UTILITY TOT.	7350	3703
	5	EMI	10K	PLANT	•	•
	TEGY OPTIM	ENISSIONS	SAVINGS	RATIO	0.047	0.062
	*** STRA	CAPITAL ENISSIONS	COST	\$000	199770	155972
			Ś		ž	3
		COST		RATIO	0.008	0.018
	3221	UTILITY	FUEL	SAVINGS	6.9	9.1
33 LEVEL	) SIC -	TOTAL	FUEL	SAVINGS	71.4	13.5
100 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	GLASS CONTAINER	FUEL ENERGY	SAVINGS	RATIO	0.653	490.0
CIAS CERERAL	INDUSTRY NO. 21	ENERGY FUEL ENERGY TOTAL UTILITY COST SAVINGS	CONVERSION	SYSTEM	NO.35	HO.37

	5	ECS	SIZE	3	5.9	<b>.</b> 3
		165	!	TOTAL	22797	36002
		ISSIONS SAVI	IS PFP YEAR	PLANT UTILITY TOTA	22797	36002
	5	<b>E</b>	10T	PLAUT	•	•
	VIEGY OPTIM	EM1551003	SAVINSS	PATIO	470.0	0.101
	*** S1PA	CAPITAL	1203	\$000	466991	7 437547 0.101
		SAVINGS	DOLLARS	\$000	50493	85577
		C051		RA110	100.0	0.103
	157. 0	CHILITY	FUEL	SAVIII'S	19.2	33.3
777 1 1 6	35	TOTAL	F11[1	SAVING	13.4	53.3
TOTAL - AMERICAL	CLINENT - DRY	FUEL FREPGY	SAVINGS	PACIO	0.00.2	0.079 2.13 30.3 0.103 65577
TARILLA CELL	INDUSTRY NO. 22	EMBGY	CONVERSION	5751411	140. \$5	141.57 0.039 2.9.

## TABLE VI-8 CASES FOR DETAIL REVIEW

## TABLE VI - 8 CASES FOR DETAIL REVIEW

			Stretegy
			Match Industrial
Energy Conversion Lystem	<u>Fuel</u>	Industry	Requirement for:
Current Steam Turbine	Coal-FGD	Corrugated Paper	Electric
Advanced Steam Turbine	Coal-AFB	Corrugated Paper	Maximum Energy Savings
Advanced High Speed Diesel	Coal-Derived	Textile Mill	Electric
	Distillate		
Advanced Low Speed Diesel	Coal-Derived	Chlorine	Electric
	Boiler Fuel		
Advanced Low Speed Diesel	Powdered Coal	Newsprint Mill	Electric
Advanced Gas Turbine	Petroleum	Corrugated Paper	Maximum Energy
	Boiler Fuel		Savings
Advanced Gas Turbine	Coal-Derived	Chlorine	Electric
	Boiler Fuel		
Advanced Gas Turbine	Gasified Coal	Writing Paper	Electric
Λ'vanced Gas Turbine	Coal-PBF	Petroleum Refinery	Maximum Energy
			Savings
Advanced Gas Turbine	Coal-AFB	Corrugated Paper	Electric
Advanced Closed Cycle	Coal-AFB	Writing Paper	Electric
Gas Turbine			
Advanced Steam Injected	Coal-Derived	Chlorine	Electric
Gas Turbine	Boiler Fuel		
Advanced Combined Cycle	Coal-Derived	Low Density	Electric
	Boiler Fuel	Polyethylene	
Advanced Combined Cycle	Coal-PFB	Newsprint Mill	Electric
Advanced Low-Temperature	Coal-Derived	Meat Packing	Electric
Fuel Cell	Distillate		
Advanced High-Temperature	Coal-Derived	Chlorine	Electric
Fuel Cell	Distillate		
Advanced High-Temperature	Gasified Coal	Newsprint Mill	Electric
Fuel Cell			
Advanced Stirling Engine	Coal-AFB	Corrugated Paper	Electric
Advanced Thermionic	Coal-Derived	Corrugated Paper	Electric
Converter	Boiler Fuel		
Advanced Organic	By-Product Hot	Cement	
Rankine Cycle	Gas -	290-	

## TABLE VI-9 EXTENDED INFORMATION FOR TWENTY CASES

AVERAGE EHERGY REQUIREMENTS

NO. 1 SIC 2011 MEAT PACKING

TIME FRAME = 1990.

STRATEGY : MATCH-E

SELECTED TECHNOLOGY

TONS) TON)

= NO.28 ADVANCED TECHNOLOGY, FUEL CELL, LOW TEMP, COAL DERIVED DIST

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1'

NO.	COGENERATION
SELECTED	TECHNOLOGY

•	, ,					10	'n	0.0 2.05			106.53 104.95	0.0 0.0			46.16 47.99		0.0 4.50	0.0		32.85 0.0		39.55 0.0		31.91 0.0			7.63 0.0	1.32 0.0		-43.17 0.0
FUEL UTILIZATION ( 10**12 BTU)	מאוסאאר פאס	PETROLEUM DISTILLATE	PETROLEUM RESIDUAL	GAS	COAL DERIVED DISTILLATE	DERIVED	COAL	ОТНЕЯ	TOT FUEL CONSUMPTION(10**12 BTU)	SITE	SOURCE	THD BYPRODUCT FUEL (10**12 BTU)	TOTAL ELECTRIC CONSUMPTION	(IIX 0**0I)	(10**12 BTU) FUEL ENERGY	ELECTRICITY PURCHASED	(10**9 KHH)	(10**12 BTU) FUEL ENERGY	TOT FUEL ENERGY SAVE (10**12 BTU)	SITE	SOURCE	TOT OIL AND GAS SAVE(10**12 BTU)	HATURAL GAS SAVINGS	(10**12 BTU)	(10*×→ CU FT)	OIL SAVINGS	(10**12 BTU)	Equiv. BBLS	COAL SAVINGS (SOURCE)	(10**12 BTU)

NON COGENERATION	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		0.0	1.000	0.0
SELECTED TECHNOLOGY	1 1 1		0.313	0.0	0.962
		1105			

o.o.	1.000	0.0	1.187	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	123.	0.0
0.313	0.0	0.962	0.540	0.077	2.0	4.28	2.0	0.330	006.0	0.0	0.0	0.125		0.946	0.0	٥.	0.0	0.271	956.0	54.	0.0
FUEL EMERGY UTILIZATION RATIOS FUEL EMERGY SAVINGS RATIO SITE SOURCE	U/U(0)	ECS FUEL/U(O)	F/U(0)	SPECIFIED FUEL/U(0)	EHERGY CONVERSION SYSTEM DATA DESIGN OPTION	ECS SIZE (MH)	HO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SEMSIBLE WASTE HEAT RATIOA	AVBL MASTE HEAT RATIO,R'HG	HASTE HEAT	AVBL WASTE HEAT RATIO,R'500 AVBL WASTE HEAT RATIO,R'300	MASTE HEAT RATIO,R'HW	TOTAL R	HEAT	RECOV MASTE HEAT RATIO,R-700	RECOVINABLE MEAT RATIO,R-500 RECOV MASTE HEAT RATIO,R-300	NASTE HEAT RATI	101vt R	AUXILIARY POWER REQUIREDORM)	AUX THERNAL REQUID**6 BIU) COP OF HEAT PUNP

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NON-COGEMERATION) U = UTILITY FUEL

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CAPITOL COST ACCOUNTING FOR TYPICAL PLANT (\* 000)

The second section of the second section of the second second second second second second second second second

	COST CATEGORY	**** SELE	***** SELECTED TECHNOLOGY QUIPMENT INSTALLATION	¥ F	NON-COSEN TOTAL
	FUEL/HASTE HANDLING AND STORAGE	\$ 1 1 1 1 1 1 1	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	; ; ; ;	† 9 8 8 8 8 8 8 8 8 8
		141.	22.	163.	135.
	1.2 LINESIUME SIUNAGE AND REINIEVAL 1.3 MASTE HAMDLING SYSTEMS				
		141.	22.	163.	135.
	ECS HEAT SOURCE				
	2.1 HEAT SOURCE	ó	ò	ö	•
		•		•	•
		29.	÷.	38.	.89.
	2.4 GASIFIERIEUS) SUB-TOTAL	29.	. ¢	. 8	. 69
ĸ,	ENERGY CONVERSION SYSTEM(ECS)				
	3.1 PRIMARY ENERGY CONVERTER	2770.	.98	2856.	
		428.	ö	428.	ė
	SECONDARY	ö		ö	ö
		ė (	<i>.</i>		<i>.</i>
	3.5 BUILDIER LICLE VAPOR GENERALOR 3 & HEAT DECOVEDY EQUIDMENT	76.9		76.0	
		. 0	<i>.</i>	, o	<i>.</i>
		•			•
	SUB-TOTAL	3540.	86.	3626.	<b>.</b>
÷	THERMAL STORAGE	ė		ò	•
۶.	SUPPLEMENTARY HEAT(FURNACE, BOILER)	114.	43.	156.	340.
	HEAT REJECTION	ó	ė	ö	6
7.	OTHER BALANCE OF PLANT ITEMS				
	7.1 SITE PREPARATION	•	,07	40.	ó
		41.		41.	61.
	7.3 ELECTRICAL COMDITIONING & CONTROL SUB-TOTAL		w tỷ	. 98 . 4	10. 77.
	INDIRECT COSTS				
	8.1 CONTINGENCY	774.	.04	814.	128.
		580. 1354.	30.	610.	96.
	TOTAL CAPITAL COST ESTINATE	5221.	272.	5493.	866.
	CONSTRUCTION TIME(YEARS) CAPITAL COST EXPENDITURE	9. 5348.	1. 279.	1. 5627.	0. 870.

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NON.	COGENERATION
SELECTED	TECHNOLOGY

ARRIUAL COSTS

94. 94. 0. 0. 0. 0. 1634. 0. 643. 1494. 0. 0. 0. 0.	0. 1384. 0. 0. 124. 25. 2495. 2997.	2820. 3362. 568. 88. 3389. 3450. 62. 0.	197.851 188.833 57.892 114.583 1.972 4.583 16.815 22.917 274.530 330.917	0.0 255.206 0.0 148.870 0.0 29.774 0.0 21.267 0.0 455.117		0.0 0.0
OPERATING COSTS 1990. (K\$/YR) NATURAL GAS PETROLEUM DISTILLATE PETROLEUM RESIDUAL COAL GAS COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL OTHER LIMESTONE/DOLOMITE LOTAL FUEL COST	ELECTRICITY STAND-BY CHARGE O & M COST TOTAL OPERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED ANUAL COST COST SAVINGS COST SAVINGS	ENVIRORMENTAL IMPACT PLANT ENISSIONS(TON/YR) SULFUR DIOXIDE HITROGEN OXIDES HYDROCARECHS PARTICULATES SUBTOTAL	UTILITY ENISSIONS(TON/YR) SULFUR DIONIDE NITROGEN ONIDES HYDROCARBONS PARTICULATES SUBTOTAL	FMISSIONS SAVINGS RATIO SULFUR DIOXIDE NITROSEN OXIDES HIDPOCAFEONS PARTICULATES	SOLID WASTES

LASE 92 INDUSTRY-LEAT PACKING STRATEGY-MATCH-E HUNE SHIP--INDUSTRIAL HISP ADVANCED TECHNOLUSTRIBE CELLICUM TEMPICIAL UFRIVED DIST

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Pov	ver	Syste	ms	Divi	SiO						The state of the s											
												OR OF	IGIN POO	AL P R QU	AGE ALI	IS Y		a company of the comp				
			COGEN	5627.	50352.	566.	149.	1843.	0.	·	124.	3407.		17.04		and the second s	662.			= 50. 1 = 30. YRS	# 15. YAS	xES = 3, 1
:			NUNCUGEN	.07.8	51824.	. 68	149.	16.65	0.	0.0		3507.		17.53	YEARS	**	1		NT PUNCHASING	VE TAX RAFE	E . IENT TAX CREGIT	ICE L OTHER TAN
START-UP DATE = 1996. DASE YEAR OF COST ESTINATES = 1978.	DEPARCIATION-SUM-OF-THE-YEARS DIGITS METHOD	AFIER-TAX CUST-OF-CAPITAL = 5.3% FIXED CHAKLF RATE ON INVESTMENT CAPITAL = 10.1% GENERAL INFLATION RATE= 0.0%		CAPITAL CHST (THOUSANDS OF BULLAKS)	LIFE-CYCLE COST (THOUSANDS OF DULLARS)	THURSANDS OF D	SESCALATION MATE	DISTILLATE :ESCALATION RATE: 1.04 RESTIMAN	: ESCALATION	KAIE	-	FOTAL SYSTEM	LEVEL12ED ANNUAL COST SAVINGS RATIO = 0.028	ANNUAL GUTFUT ZONOOGIETINS! LEVELIZED FNERGY CUSTENTON) * ONLE ENERGY CUSTENTON! **	UPDISCOUNTED PAYMACE FERIOD = 10.9	DISCOUNTED CASH FLOW RATE OF RETURN 12 679	BET PRESENT VALUE OF INCREMENTAL CASH FLOW (COGER, MILUS NOSCOGEN, - (THOUSANDS OF OUTLANS))	. BASED O'I ARNIBAL DITPUT OF PRODUCT	** HAS A'S UMCHANGING VALUE IN TERMS OF CURSTANT PURCHASIN POWE CAND GROWS ANIMALLY AT THE GENERAL INFLATION RATE	= 3. t	4 p	CHAMIN STOLK CAPITALIZ. = 70. T INSURANCE

FCR-1333

AVERAGE ENERGY REQUIREMENTS

HO. 4 SIC 2221 BROAD NOVEN FABRIC HILLS

TIME FRAME = 1990.

STRATEGY : MATCH-E

SELECTED TECHNOLOGY

TONS ) TON)

= NO. 9 ADVANCED TECHNOLOGY, DIESEL, HIGH SPEED, COAL DER. DIST.

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Ž	COGENERATION
SELECTED	<b>FECHNOLOGY</b>

2 62 12 02				_	5.93 0.0	0.0	0.0 2.12			95.72 107.71	0.0 0.0		7.25 7.30	55.00 77.82			0.0 77.82		44.17 0.0	11.98 0.0	18.49		0.0 05.6	10.11 0.0			1.57 0.0		300	
FUEL UTILIZATION ( 10**12 BTU)	DETACLED DISTRIBATE	PETROLEUM RESIDUAL	COAL GAS	COAL DERIVED DISTILLATE	COAL DERIVED RESIDUAL	COAL	OTHER	TOT FUEL CONSUMPTION 10**12 BTU)	SITE	SOURCE	IND BYPRODUCT FUEL (10**12 BTU)	TOTAL ELECTRIC CONSUMPTION	(10**9 Kin)	110**12 BTU) FUEL ENERGY	ELECTRICITY PURCHASED	110**9 KEC	(10**12 BTU) FUEL ENERGY	TOT FUEL ENERGY SAVE (1044)2 BIU)	SITE	SOURCE	TOT OT AND GAS SAVE(10*#12 BTU)	HATURAL GAS SAVINGS	(10**12 BTU)	(10**9 CU FT)	OIL SAVINGS	(10**12 BTU)	EGUIV. BBLS	COAL SAVINGS (SOURCE)	COLO STREET	(10%+9 TONS)

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22	<b>COGENERATION</b>
SELECTED	TECHNOLCGY

U/UIO) ECS FUEL/UIO)	0.410	0.0
CS FUEL/U(0)	0.0	1.000
	0.707	0.0
F/U(0)	0.1:0	0.334
SPECIFIED FUEL/ULD)	0.034	0.0
ENERGY CONVERSION SYSTEM DATA DESICH OPTION	1.0	0.
ECS SIZE (PA)	06.1	0.0
NO. OF UNITS	2.0	0.0
ECS ELECTRICAL EFF-ETAE	0.450	0.0
SENSIBLE WASTE HEAT RATIOA	0.367	0.0
AVBL MASTE HEAT PATIO,R'HG	1.000	0.0
MASTE HEAT	185.0	0.0
AVBL WASTE HLAT RATIO,R'-500 AVBL HASTE HEAT RATIO,R'-300	0.090	0 0
HASTE HEAT RATIO,R'HH		0.0
TOTAL R	0.692	0.0
PECOV WASTE HEAT RATIO,RHG	0.0	0.0
RECOV HASTE HEAT RATIO, R-700	0.0	0.0
RECOV,WASTE REAT RATIO,R-500 DECOV MASTE WEAT BATTA 0.100	0.602	9.
MASTE HEAT	0.0	9 0
TOTAL R	0.692	0.0
AUVILLARY FOUER REGUIPEDIEHD	7.	30.
AUK THERMAL FEGITO**5 BTU)	Ö	•

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (MON-COSEMERATION) U = UTILITY FUEL

CAPITOL COST ACCOMMING FIR TYPICAL PLANT (\$ 000)

ING AND STORAGE  AND REPRIEVAL  ORAGE ALTO RETRIEVAL  ORAGE CONTROLS  ORAGE ALTO RETRIEVAL  ORAGE ALTO RETRIEV		COST CATEGORY	EQUIPRENT	FRUIPHENT INSTALLATION TOT	TOTAL	TOTAL
1.1 FUEL STORAGE AND RETREVAL 0.0.0.0.0.0.0.0.1. 1.2 LINESTORE STORAGE AND RETRIEVAL 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	<b>.</b>	FUEL/WASTE HANDLING AND STORAGE	6 9 9 9 9 9 4 7		1 1 1 1 1 1 1	8 6 8 8 9 9
1.2 LINESTONE STORAGE AND RETRIEVAL 0. 0. 0. 0. 0. 1.3 LINESTONE STORAGE AND RETRIEVAL 0. 0. 0. 0. 0. 0. 1.3 MASTE HARDLING SYSTEMS 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.		_	36.	ė	41.	22.
1.3 JASTER HANDLING SYSTEMS  2. SUB-TOTAL  ECS HEAT SCURCE  2. 1 FECT SCURCE  2. 2 FECT LAL ENTISSIONS CONTROLS  2. 2 FECT LAL ENTISSIONS CONTROLS  2. 3 FECT LAL ENTISSIONS CONTROLS  2. 4 GAST FERRECS  3. 4 GAST FERRECS  3. 4 GAST FERRECS  3. 4 GAST FERRECS  3. 5 FECT LAL ENTISSIONS CONTROLS  3. 1 PRIMARY CENERAL CONVERTER  3. 5 ECT COLOURS CENERAL CONVERTER  3. 4 SECT COLOURS CENERAL CONVERTER  3. 5 ECT COLOURS CONVERTER  3. 5 ECT COLOURS CONSTRUENT  3. 6 ECT POLOURS  3. 6 HEAT POLOURS  4. 6 HEAT POLO			ö	ó	ö	Ġ
ECS HEAT SOURCE  2.1 HEAT SCURCE  2.2 SPECIAL ENISSIONS CONTROLS  2.3 FEED MATER SYSTEMS  2.4 GASTFIERCES  3.1 FEED MATER SYSTEMS  3.1 PRINAPY ENERGY CONTROLER  3.1 SECONDARY GENERATOR  3.2 SECONDARY GENERATOR  3.3 SECONDARY GENERATOR  3.4 SECONDARY GENERATOR  3.5 CONTROLERS  3.6 HEAT POUP  3.6 HEAT POUP  3.6 HEAT POUP  3.7 CONDITIONERS  3.8 HEAT POUP  3.9 FEED MATER STORAGE  3.9 HEAT POUP  3.9 HEAT POUP  3.0 HEAT POUP  3.1 STORE PREPARATION  3.2 STRUCTURES  3.3 SECONDARY MATER ROLLER TO 0  3.4 HEAT POUP  3.5 ENGINEERS  3.6 HEAT POUP  3.6 HEAT POUP  3.7 CONDITIONERS  3.7 CONDITIONERS  3.8 HEAT POUP  3.9 HEAT POUP  4.9 HEAT POUP  4.9 HEAT POUP  5.0 HEAT POUP			ö	•	ė	ċ
ECS HEAT SOURCE  2.1 HEAT SCURCE  2.2 SPECIAL ENISSIONS CONTROLS  2.4 GASTFIERICES)  2.5 GASTFIERICES)  2.6 GASTFIERICES)  2.7 GASTFIERICES)  3.1 PRINADY ENERGY CONVERTER  3.2 SECONDARY GENERATOR  3.4 SECONDARY GENERATOR  3.5 SECONDARY GENERATOR  3.6 HEAT POWN  3.6 HEAT POWN  491. 324. 8415.  91. 91.  91.  91.  91.  91.  91.  91.		SUB-TOTAL	×.	خ		22.
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3.3 SECONDARY ENERGY CONVERTER  3.4 SECONDARY GENERATOR  3.5 EDITORHIZO STOLE VAPOR GENERATOR  3.6 HEAT PECOVERY EQUIPHENT  3.6 HEAT PECOVERY EQUIPHENT  3.7 CCNOCHISERS  3.8 HEAT PUND  SUB-TOTAL  SUB-TOTAL  SUB-TOTAL  THERHAL STORAGE  0.00  0.00  THERHAL STORAGE  0.00  0.00  THERHAL STORAGE  0.00  0.00  THERHAL STORAGE  0.00  11.3.14.  HEAT REJECTION  OTHER GALANCE OF PLANT ITEMS  7.1 SITE PREPARATION  T.2 STRUCTURES  7.2 STRUCTURES  7.3 ELECTRICAL CONDITIONING & CCNTROL  SUB-TOTAL  SUB-TOTAL  SUB-TOTAL  TOTAL CAPITAL CONST ESTINATE  14.32.493.  16.014. CAPITAL CONST ESTINATE  CONSTRUCTOR THERE SALESTINATE  14.32.493.  16.014. CAPITAL CONST ESTINATE  CONSTRUCTOR THERE SALESTINATE  14.32.493.  16.014. CAPITAL CONST ESTINATE  CONSTRUCTOR THERE FARS  16.00  16.10			91.		91.	
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THERMAL STORAGE  SUPPLEHENTARY HEATTFURNACE, EDILER)  HEAT REJECTION  OTHER BALANCE OF PLANT ITEMS  7.1 SITE PREPARATION  7.2 STRUCTURES  7.3 STRUCTURES  7.4 STRUCTURES  7.5 STRUCTURES  7.6 STRUCTURES  7.7 STRUCTURES  7.8 SUB-TOTAL  100 INDIRECT COSTS  8.1 CONTINSENCY  8.2 ENGINEERING AND FEES  8.2 ENGINEERING AND FEES  8.3 ENGINEERING AND FEES  8.4 CONTINSENCY  8.5 ENGINEERING AND FEES  8.6 ENGINEERING AND FEES  8.7 CONTINSENCY  8.8 ENGINEERING AND FEES  8.9 ENGINEERING AND FEES  8.1 CONTINSENCY  8.2 ENGINEERING AND FEES  8.3 ENGINEERING AND FEES  8.4 CONSTRUCTION TIME (FEAS)  1.1 INDIRECT COST ESTIMATE  14. INDIRECT COST ESTIMATE  14. INDIRECT COST ESTIMATE  14. INDIRECT COST ESTIMATE  14. INDIRECT COST ESTIMATE  15. CONSTRUCTION TIME (FEAS)  1. INDIRECT COST ESTIMATE  14. INDIRECT COST ESTIMATE  15. INDIRECT COST ESTIMATE  16. INDIRECT COST ESTIMATE  17. INDIRECT COST ESTIMATE  17. INDIRECT COST ESTIMATE  16. INDIRECT COST ESTIMATE  17. INDIRECT COST ESTIMATE  17. INDIRECT COST ESTIMATE  17. INDIRECT COST ESTIMATE  17. INDIRECT COST ESTIMATE  17.			666	324.	990.	
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SUPPLEMENTARY HEATTFURNACE, BOILER)       11.       3.       14.         HEAT REJECTION       0.       0.       0.       0.         OTHER BALANCE OF PLANT ITEMS       0.       14.       14.         7.1 SITE PREPARATION       0.       14.       14.         7.2 STRUCTURES       0.       14.       14.         7.3 ELECTRICAL CONDITIONING & CONTROL       0.       14.       16.         1 SUB-TOTAL       14.       346.       14.       360.         1 INDIRECT COSTS       14.       360.       17.       360.         1 MDIRECT COSTS       15.       52.       211.         8.1 CONTINGERING AND FEES       159.       52.       211.         5 CONSTRUCTION TIME (FEAS)       14.       162.       493.         101AL CAPITAL CAPITAL EARDS)       0.       14.       1001.	÷	THERMAL STORAGE	•	ò	ó	•
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SU3-TOTAL   346.   14.   360.   19.   360.   340.		ELECTRICAL			-	
HADIRECT COSTS			346.	14.	360.	31.
CONTINGENCY     212.     70.     262.       ENGINEEPING AND FEES     159.     52.     211.       SUB-TOTAL     371.     122.     493.       TOTAL CAPITAL COST ESTINATE     1432.     469.     1901.     1       CONSTRUCTION TINE (FEARS)     0.     1.     1.	ø.					
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STRATEGY-MATCH-1	SPEED, COME DER. P.
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Starf-of Date - 1996. Hase feam of cust estimates = 1976.	DEPARCIALLIN-SUA-III-THE-VEAMS DIGITS MITHOR	FIRM-TAK CHST-HF-CAPITAL = 5.24 FILO CHAMCE MATE ON THVESTMENT CAPITAL = 10.1% CTREMAL THELATHIN MATE 0.04		CAPITAL COST (FMINSAMOS OF INILLARS)	LIPE-CYCLE COST (THINSAM), OF DOLLARS)	AMENTALIZED CISTS (PRINSAMPS OF PULLANS) FIRED PUPILISM	SESCALALITM RATES	UPSHELANE :ESCALATION MAICE 1.06 MESTHUAL :ESCALATION MAILE 1.06	SESCALATION BATES	Ľ	OCH, INS, ETC. THE ATTOM RATE E 0.04	LUFAL SYSTEM	MIAL COST SAVINGS HATTO	ALMENTAL INTROL MANY CONTINUES CLUELINED THEREWAY CONTINUES CONTINUES	INNIT IMILD PAYNACK PERTUD = 10.5	DISCORATES CASH FLOW HATE OF RETORN = 7.6	G.T PRESENT VALUE UP INCREMENTAL CASH FLUM (C)GEN, MINIS MONGOGEN. — ITHOUSANDS HE POLLARS))	. RASSELL 'M ANNIAL MITPIET HE PROUDLE	** 1145 AN UNCHANGINI VALUF IN TERMS OF CONSTANT POWER AND GROUPS AUDITLY AT THE GENERAL INFL	COST OF OFFICE CONTROL ENGINE S 1. 6 EFFECTIVE COST OF PREFERENCE CONTROL S 1. 6 LANGEL CONTROL CONTROL S 10. 6 TAX LIFE OF TAX LIFE CONTROL C	C FIMING STOCK LAPITALIZ. = 70. T INSIMANCE PREFENRED STOCK CAPITALIZ. = 0. T INCHEMENT	

AVERAGE ENERGY REQUIREMENTS

HO. 6 SIC 2621 HEWSPRINT MILL

TIME FRAME = 1990.

STRATEGY : MATCH-E

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FUEL UTILIZATION ( 10**12 BTU) NATURAL GAS	PETFOLEUM DISTILLATE	PETROLEUM RESIDUAL	GAS	DERIVED	COAL DERIVED RESIDUAL	COAL	ОТНЕЯ	TOT FUEL CONSUMPTION(10**12 BTU)	SITE	SOURCE	IND BYPRODUCT FUEL (10**12 BTU)	TOTAL ELECTRIC CONSUMPTION	(10**9 KWH)	(10**12 BTU) FUEL ENERGY	FIECTRICITY PURCHASED	(10**0T)	(10**12 BTU) FUEL ENERGY	TOT FUEL ENERGY SAVE (10**12 BTU)	SITE	SOURCE	TOT OIL AND GAS SAVE(10**12 BTU)	NATURAL GAS SAVINGS	(10**12 BTU)	(10**9 CU FT)	OIL SAVIRGS	(10**12 BTU)	Equiv. Bals	COAL SAVINGS (SOURCE)	(10**12 BTU)	(10*46 TONS)

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SELECTED NON
TECHNOLOGY COGENERATION

FUELI

F = AUXILIARY FUEL (INCLUDES SPECIFIED
U(0) = UTILITY FUEL (NON-COGENERATION)
 U = UTILITY FUEL

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STIE SOURCE	0.249	0.0
U/U(0)	0.0	1.000
ECS FUEL/U(0)	0.866	0.0
F/U(0)	0.120	0.313
SPECIFIED FUEL/U(0)	0.0	0.0
ENERGY CONVERSION SYSTEM DATA DESIGN OPTION	1.0	0.0
ECS SIZE (MM)	27.81	0.0
NO. OF UNITS	5.0	0.0
ECS ELECTRICAL EFF-ETAE	0.370	0.0
SENSIBLE MASTE HEAT RATIOA	0.855	0.0
AVBL WASTE HEAT RATIO,R'HG	0.591	0.0
AVDL HASTE HEAT RATIO,R'-700	0.0	0.0
HASTE HEAT	0.095	0.0
300 -11W	•	0.0
TOTAL R	0.687	0.0
MASTE HEAT	0.0	0.0
IEAT A	0.0	o.o
RECOV, WASTE HEAT RATIO, R-500	0.095	9.0
WASTE HEAT RATIO,RHW	0	
TOTAL R	0.360	0.0
LIAPY PC	1876.	1711.
AUX THERMAL REG(10**6 BTU)	74.	· •

PLANT	
TYPICAL	
FOR	
ACCOUNTING	(000 \$)
COST	
APITOL	

		1			
COST CATEGORY		EQUIPMENT	QUIPHENT INSTALLATION	TOTAL	TOTAL
FUEL/MASTE MANDLING AND STORAGE	4G AND STORAGE				
_	STORAGE AND RETRIEVAL	3573.	1686.	5259.	725.
1.2 LINESIGNE SIGNAGE AND 1.3 WASTE HANDLING SYSTEMS	LINESIUME SIURAGE AND METRIEVAL WASTE HANDLING SYSTEMS		<b>.</b> .		
		3573.	1686.	5259.	725.
ECS HEAT SOURCE					
2.1 HEAT SOURCE			ė	ö	ė
	4S CONTROLS	Ö	Ö	6	•
2.5 FEEU MAIEK STSIEMS 2.4 GASTETFR(FCS)	13	242.	103.	344.	586.
		242.	103.	344.	586.
ENERGY CONVERSION SYSTEM(ECS)	TEM(ECS)				
	VERTER	47108.	1113.	48221.	
	INVERTER	11821.	•	11821.	•
3.3 SECONDARY EMERGY CONVENIER 3 & SECONDARY CENEDATOD	מין אם ואם אם יים מיני	<b>.</b>	<i>.</i>	<b>.</b>	÷ (
BOTTOMING	POR GENERATOR	ò			
	PMENT	8557.		8557.	
3.7 CONDEMSERS		<b>.</b>		ė	<i>.</i>
		67485.	1113.	68598.	
THERNAL STORAGE			•	•	6
SUPPLEMENTARY HEAT(FURNACE, BOILER)	RNACE, BOILER)	1349.	413.	1762.	2991.
HEAT REJECTION		1125.	623.	1747.	ö
OTHER BALANCE OF PLANT ITEMS	T ITEMS				
		0.	864.	. 996	48.
7.2 STRUCTURES 7.3 ELECTRICAL COMDITI	COMPOSTIONING & CONTROL	8617.	0 0	8617.	442.
SUB-TOTAL		8630.	884.	9514.	520.
INDIRECT COSTS					
CONTINGENCY		16481.	. 496	17445.	965.
8.2 ENSINGERING AND PEES SUB-TOTAL	FES	12361.	723. 1687.	13064. 30529.	723. 1688.
TOTAL CAPITAL COST ESTIMATE	T ESTIMATE	111245.	6209.	117753.	6511.
CCNSTRUCTION TIME(YEARS)	ELYEARS)	.0	2.	2.	Ö
CAPITAL COST EXPENDITURE	ENDITURE	116715.	6829.	123543.	6537.

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NON	COGENERATION
SELECTED	TECHNOLOGY

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1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0. 0. 0. 0. 0. 0. 0.	. 12313.	40101. 0. 207. 52621.	59068. 660. 59728. 0.0	1556.671 944.582 37.783 183.917 2727.953		15918.602 0.0 0.0 0.0	0.0
	0. 0. 0. 1. 20199. 0.	25000.	0. 0. 1855. 26855	29930. 12478. 42408. 17320. 0.290	7011.656 19048.684 14.732 607.385 26682.453	00000	26682.453 0.217 -2.622 0.984 0.246	-0.676
AHHUAL COSTS	OPERATING COSTS 1990. (K\$/TR) NATURAL GAS PETROLEUN DISTILLATE PETROLEUM RESIDUAL COAL GAS COAL DERIVED DISTILLATE COAL OTHER LIMESTONE/POLOMITE	TOTAL FUEL COST	ELECTRICITY STAND-BY CHARGE O & H COST TOTAL OPERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED ANNUAL COST COST SAVINGS COST SAVINGS RATIO	ENVIRORMENTAL IMPACT	UTILITY EMISSIONS(TON/YR) SULFUR DIOXIDE HITROGEN OXIDES HYGROCARBONS PARTICULATES SUBTOTAL	TOTAL EMISSIONS SAVINGS RATIO SULFUR DIOXIDE MITROGEN GXIDES HYDROCARBONS PARTICULATES	TGTAL SOLID WASTES

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CASE 43 IMMOSTRY SWEPHINT MILL STRATEGY-MATCH-E UMBESTIP--INDUSTRIAL THE LANGE SHIP--INDUSTRIAL

Power	r Syste	MS	Div	isio	n			AND THE RESERVE OF THE PROPERTY OF THE PROPERT											FCR	133
		NONCOGEN	6537. 123543.	800274. 627643.	657. 12424.	•	2278	207. 185	59974. 42473.		41.48 64.78 91.48 64.78	VEARS		1 = 126458.		INSTANT PURCHASING L INFLATION RATE	TAX RATE = 50. %	E 1 [ TAX CREDIT = 1 C OTHER TAXES =	CAPITAL INV. = 0	
DESCRIPTION OF THE CONTROL OF THE THEORY OF THE CONTROL OF THE CONTROL OF THE THE TEAMS (1) IN THE METHOD OF THE TEAMS (1) IN THE THEORY OF THE TEAMS (1) IN TH	AFTEK-TAX CUST-OF-CAPTIAL = 5.34 FIXED CHARGE RATE UN INVESTMENT CAPTIAL = 10.14 UEMERAL INFLATION RATE= 0.04		CAPITAL COST (THOUSANDS OF DOLLARS)	LIFE-CYCLE COST (THOUSANDS OF DULLANS)	.TS (14		SESCALATION RATE	UCM, INS, ETC. SINFLATION KATE = 0.04	TOTAL SYSTEM	LEVELIZED ANNUAL COST SAVINGS RATIO = 0.292	ARBOAL DUTEUT 655623.(TUNS) LEVELTZED ERERGY COST(\$/TON) • UNIT ENERGY COST(\$/TON) ••	AND SCHUNIED PAYBACK PERIOD = 6.0	HISCOUNTEN CASH FLOW RATE OF RETURN = 15.3	NET PRESENT VALUE OF TRCREMENTAL CASH FLOW (COREN, MINUS NUMCUGEN, "THÔUSANDS OF DOLLARS))	. BASED UN ANNUAL DUTPUT DE PRODUCT	+> HAS AN UNCHANGING VALUE IN TERMS OF CONSTANT POWER AND GROWS ARRUBLLY AT THE GENERAL INFL	UF DENT = 3. x EFF	USST OF PREFERENCE COURT AND LINKESTHEN CONTRACTOR INVESTMENT CONTRACTOR AND A NO. & INVESTMENT CONTRACTOR AND INCOMENCE.	PAFFERRID STUCK CAPITALIZ. = 0. 4 INCREMENTAL	

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AVERAGE ENERGY REQUIREMENTS

NO. 6 SIC 2621 NEWSPRINT MILL

TONS) TORD

TIME FRAME = 1990.

STRATEGY : MATCH-E

SELECTED TECHNOLOGY

= NO.25 ADVANCED TECHNOLOGY, COMBINED CYCLE, DIRECT FIRED, COAL(PFB)

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XQ4	COGENERATION
SELECTED	TECHNOLOGY

0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	86.43 120.04 86.43 120.04 30.15 30.15	8.61 8.57 86.43 91.44	<b>N</b> N	23.64 0.0 11.82 0.0 12.71 0.0	11.62 0.0 2.04 0.0 9.97 0.0
FUEL UTILIZATION ( 10#*12 BTU)  HATURAL GAS  PETROCEUM DISTILLATE  PETFOLEUM RESIDUAL  COAL CAS  COAL DERIVED DISTILLATE  COAL DERIVED RESIDUAL  COAL DERIVED RESIDUAL	TOT FUEL CONSUMPTION(10**12 BTU) SITE SOURCE IND BYPRODUCT FUEL (10**12 BTU)	TOTAL ELECTRIC CONSUMPTION (10**9 KKH) (10**12 BTU) FUEL ENERGY ELECTRICITY PURCHASED	(104*12 BTU) FUEL ENERGY TOT FUEL ENERGY SAVE (10**12 BTU) SITE SOURCE	TOT OIL AND GAS SAVE(10**12 BTU) HATURAL GAS SAVINGS (10**12 BTU) (10**9 CU FT)	01L SAVINGS (10**12 BTU) EQUIV. EBLS COAL SAVINGS (SOURCE) (10**12 BTU) (10**6 TORS)

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9.0	1.000	0.0	0.313	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	•	) c	0.0	0.0	1711.	0.0
0.280	0.0	0.945	000.0	0.0	1.0	69.76	2.0	0.305	0.873	0.736	0.250	0.071	0.049	0.519	0.0	0.0	0.118		0.519	2330.	. 0
FUEL ENEPGY UTILIZATION RATIOS FUEL ENERGY SAVINGS RATIO SITE SOURCE	U/UI 0)	ECS FUEL/U(Q)	F/U(0)	SPECIFIED FUEL/U(0)	ENEEGY CONVERSION SYSTEM DATA DESIGN OPTION	ECS SIZE (PH)	HO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE HASTE HEAT RATIOA	AVBL 445TE HEAT RATIO,R'HG	MASTE HEAT	W.STE HEAT	MASTE REAT RATIO,R' NU	j       	HASTE HEAT	RECOV HASTE HEAT RATIO,R-700	PECOVINADIE DEMI RALIOIN-300 PECOV UASTE HEAT RATIO, P-100	RATIO,RHU	TOTAL R	AUXILIARY FORER REQUIREDIKH)	AUN THERMAL REQUIDMM6 BTU) COP OF HEAT PUMP

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NON-COGENERATION) U = UTILITY FUEL

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PLANT	
TYPICAL	
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ACCOUNTING	(000 \$)
1 COST	
APITOL	

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ATRUAL COSTS	OPERATING COSTS 1993. (K\$/YR) NATURAL GAS PETROLEUH DISTILLATE FERROLEUH RESIDUAL COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL OTHER LIHESTONE/DOLOHITE	TOTAL FUEL COST  ELECTPICITY STAID-BY CHARGE O & H CCST  TOTAL OPERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FLIKED CHARGES LEVELIZED ANNUAL COST COST SAVINGS COST SAVINGS RATIO	ENVIRORMENTAL IMPACT  PLANT ENISSIONSI TOWYR)  SULFUR DIONIDE  NITROSEN OXIDES  HYDPOCAREONS  PARTICULATES  SUBIOTAL	UTILITY EMISSIONISCION/YR) SULFUR DIOXIDE NITPOSEN OXIDES HADROCAFECTS PARTICULATES SULFURATES TOTAL	EMISSIONS SAVINGS RATIOSULE SULEU? DIOKIDE NITHOGEN OKIDES HOPPOCAFEONS PARTICULATES TOTAL SOLID WASTES

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			NIWICOGE N	6537	hu6274	-	!	138		452	201	59974		5.5	YEARS	**	"		PUNC.	TAX	T IAX	AL CA		
		0.14	ž		•				!				63	:	÷.	9	I ANS ]		STANT	CTIVE	STMEN	N 25 N		
	i. 1010	4					3.68		101	30.1	0.06		= 0.2		Λ #	= 15	F108		SE COM	Erri ECON 1AX	INVE	¥		
<b>:</b>	113	AF176	1	5.1	LARSI	ILLAKS							91 TO			2	CASH MDS H	DIALT	KMS ()	3.6	30. 4 10. 4	<b>)</b> .0		
. 197	310 5	> 36		HILL AK	5	5	¥ .	RESCALATION MAILE	II SCALATIIM KATE	SESCALATION RAILS	INFIATION RATE		¥ .:			RE TO	INTAL INDISA	1 P 66	12 14 7					
\$ <b>11</b> \$	- YE AN	1AL - IVESTO		*	1 5000	SAMUS	SE SCALATION	Z	CALA		VFI AT		SAVI	655633.(110h5) NST(+/10h) /(ON) **	9	17 E (16	CKE PE	Pull	41411	1		21		
"00. E S [ ] P	¥ - 111	CAPI I		1SAMO:	(rethus,	PHHA!					=		Cust	6556 INSTE	J. Y.	7	OF 10	180	: 1866 V	CHANTA FAULTY PREFERED EMILY	M . 3 / .	Y       Y		
COST	- SIM-1	7-40-7- 7-41-6-7-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-		(Traff	1 151	S 1 S 1					:		MMIN	K6V C	PAYN	1511 F1	PALUE S PRIMITE	A NIGHT	UCHAPH 1 CKIN	CHANTY FUOLITY	/41     42	ت <u>خ</u>		
1 40 . 14 (4)	-1461	IARGE THELE		Cusf	T.F. C	20 634	1	I A I E		3 5 T	is, fT	5.75.16	1.160.1	DATEAN Lib. ent enty C	111.0	Tún C	SENT A	destri in annual initeri or Prilbuct	HAS AN IMCHANGTING VALUE IN TERMS OF COPPINEE AND EXPERSE.	Cummit Filter	FILME	i E		
STAKT-UP (PATE - 1990). NAST YCKF OF COST ENTHALTS - 1978.	n PRECTATION-SIM-OF-FOR-YEARS DIGITS MEDIDO	41 FEM - LAX CIISF-III-CAPITAL - 5,36 1 LEEL LIANGE PATE IM INVESTIGNT CAPITAL 117 FEMAL TIFFATTON MATES 0.01		CAPITAL COST (THINSANDS OF DINEAKS)	LIFE-CYCLE COST (FORMSARDS OF DULLARS)	ANAIMALIZED CUSTS TRUBUSARUS OF HULLARS)	selue at cas	DISTILLATE Residual	COAL	CHAL GAS & HIMMER Electricity	DEM, THS, FTC.	fufal system	LEVEL [280 AMMIAL CIIST SAVINGS KALIO = 0.3	ANNUAL GUITEUT 655633. FUN LEVELIZEN ENEKAY COSTES/TON) MATT ENEKNY COSTES/TON) **	USDISCOUNTED PAYNACK PERIOD	UISCONATED CASA FLOW RATE OF RETURN	N. I PRESENT VALUE OF INCREMENTAL CASH FLOW (COLEM, AIRDISAMES OF DOI	1246		cost or Ordi	OCHT CAPITALIZATION CONTOR STORE CAPITALIT.	PHIFFHALD STOCK CAPTER TO		
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CASE OR HOUSINY CONSPRINT MICE. STRAFICY-OFFINAM CHARK, SOJE-CIMPOSINTAL. TOLES AUXINED CONTROLLY OF STRAFE FOR THE CONTROLLY OF STRAFE

AVERAGE ENERGY REQUIREMENTS

140. 6 SIC 2621 HEMSPRINT HILL

TINE FRANE = 1990.

STRATEGY : MATCH-E

= NO.31 ADVANCED TECHNOLOGY, FUEL CELL, MIGH TEMP. . COAL GASIFIER SELECTED TECHNOLOGY

TOKS) TON)

-315-

1'

#12 #35

101	COGENERATION
SELECTED	TECHHOLOGY

11.32	11.62	9 G (	D 4.	0.0	120.04	30.15	8.57 91.44	8.57 91.44	o e	0.0	o o	 	9 0 0 0
• •	0 0	9 0	74.65	0.0	74.65	30.15	8.48 74.65	0.0	45.39	23.64	11.62	11.62	21.75
FUEL UTILIZATION ( 10**12 BTU) NATURAL GAS DETECHEN DISTRIBLE	PETFOLEUM RESIDUAL	COAL DERIVED DISTILLATE	COAL DEPIVED RESIDUAL	OTHER	TOT FUEL CONSUMPTION (10**12 8TU)	SUBSTREET FUEL (10**12 BTU)	TOTAL ELECTRIC COMSUMPTION (10*0) LIM) (10*12 BTU) FUEL ENERGY	FLECTPICITY PURCHASED (10**9 KMH) (10**12 BTU) FUEL ENERGY	TOT FUEL EMERGY SAVE (10**12 BTU) SITE SOURCE	TOT DIL AND GAS SAVE(18**12 BTU)	HATURAL GAS SAVINGS F10**12 BTU1 F10**9 CU FT1	OIL SAVINGS (10**12 BIU) Equiv. Ebls	COAL SAVINGS (SOURCE) (10**12 BIU) (10**6 TOAS)

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£	COGENERATION
SELECTED	TECHHIOLOGY

• •	000.1	•	0.313	<b>.</b> .	o. e	0.0	• ·	• · •	o. o	• •	9.	<i>o</i>		9.0	0.0	a ,	e .	9 9	0.0	1711.	9 .
0.378 0.378	0.	0.616	0.0	0.0	1.0	66.65	2.0	0.276	0.812	0.0	9.406	0.117	0.255	6.908	0.0	0.0	0.381	• •	6.639	119.	9 !
FUEL EHERGY SAVINGS RATIOS FUEL EHERGY SAVINGS RATIO SITE SOURCE	U/U(0)	ECS FUEL/U(0)	F/UIO)	SPECIFIED FUEL/VIO	ENEPGY CONVERSION SYSTEM DATA Design option	E'S 512E (PA)	HO. OF UAITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE MASTE HEAT PATIOA	AVBL HASTE HEAT RATIO,R'HS	WASTE MEAT	AVEL WASTE HEAT MATIO,R'-500 EVAL WASTE HE! FOATTO,R'-300	WASTE HEAT RATIO,R"HIL	TOTAL R	HASTE MEAT	RECOV ELSTE HEAT PATIO,R-700	PECOVILISIE MEAT WATTO F - 500	RATIO	R TYLOL	AUSTLIAPY FOUER REGUIPEDIFUS AUSTHEPIAL PEGGIO**6 BTUI FOUE MEST BIND	

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(3) = UTILITY FUEL (MON-COGENERATION) U = UTILITY FUEL

1'

CAPITOL COST ACCOMMING FOR TYPICAL PLANT (\$ 000)

FUEL/WASTE HAIDLING AND STORAGE  1.1 FUEL STORAGE AND RETRIEVAL 1.2 LITIESTONE STORAGE AND RETRIEVAL 1.3 HASTE HAIDLING SYSTEMS 1.4 LITIESTONE STORAGE AND RETRIEVAL 1.5 HASTE HAIDLING SYSTEMS 1.6 SUB-TOTAL 1.7 FED MATER SYSTEMS 1.8 SECTIAL HISSIONS CONTROLS 1.9 SCECIAL HISSIONS CONTROLS 1.9 SECTIAL HISSIONS CONTROLS 1.1 FED MATER SYSTEMS 1.2 FED MATER SYSTEMS 1.3 FED MATER SYSTEMS 1.4 SECONARY REBROY CONVERTER 1.5 SUB-TOTAL 1.6 SUB-TOTAL 1.7 SUB-TOTAL 1.7 SUB-TOTAL 1.8 SUB-TOTAL 1.9 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-TOTAL 1.1 SUB-		COST CATEGORY		INSTALLATION	TOTAL	TOTAL
1.1 FUEL STORAGE AND RETRIEVAL  1.2 LITESTONE STORAGE AND RETRIEVAL  1.3 HASTE HALDLING SYSTEMS  2.0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	-	FUEL/WASTE HARDLING ARD STORAGE	; ; ; ; ; ;			# 
1.2 LINESTONE STORAGE AND RETRIEVAL 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.			3964.	2094.	6058.	725.
ECS HEAT SOURCE  2.1 HEAT SOURCE  2.2 SPECTAL EMISSIONS CONTROLS  2.4 GASITERREES)  3.5 FED HATER STIERIS  3.6 SECTIAL EMISSIONS CONTROLS  3.6 SECTIAL EMISSIONS CONTROLS  3.1 PPINARY CHERGY CONVERTER  3.2 PRINARY CHERGY CONVERTER  3.3 SECONDARY CHERGY CONVERTER  3.4 SECONDARY CHERGY CONVERTER  3.5 FRITANS CHERGATOR/INVERTER  3.6 SECONDARY CHERGY CONVERTER  3.6 SECONDARY CHERGY CONVERTER  3.6 FATA RECOVER FQUIPMENT  3.6 HEAT RECOVER FQUIPMENT  3.6 HEAT PRICADER FQUIPMENT  3.6 HEAT PRICADER FQUIPMENT  3.6 HEAT PRICADER FQUIPMENT  3.6 HEAT PRICADER FQUIPMENT  3.6 HEAT PRICADER FQUIPMENT  3.7 CONDRIBERS  3.8 HEAT PUTAL  3.9 SHEAT PUTAL  3.9 SHEAT PUTAL  3.1 STEE PREPARATION  44  7.2 STRUCTURES  45  7.1 SITE PREPARATION  60  61  7.2 STRUCTURES  7.3 STRUCTURES  7.4 STRUCTURES  7.5 STRUCTURES  7.6 STRUCTURES  7.7 STRUCTURES  7.8 STRUCTURES  7.9 STRUCTURES  7.1 STRUCTURES  7.2 STRUCTURES  7.3 STRUCTURES  7.4 STACE  7.5 STRUCTURES  7.6 STACE  7.7 STRUCTURES  7.7 STRUCTURES  7.7 STRUCTURES  7.8 STRUCTURES  7.9 STACE  7.1 STRUCTURES  7.2 STRUCTURES  7.3 STRUCTURES  7.4 STACE  7.5 STRUCTURES  7.6 STACE  7.7 STRUCTURES  7.7 STRUC			ė	6	ci (	•
ECS HEAT SOURCE  2.1 HEAT SOURCE  2.2 SECTAL ENISSTONS CONTROLS  2.3 FECD MATER SYSTEMS  2.4 GASTERREECS)  2.5 SECTAL ENISSTONS CONTROLS  2.5 FECD MATER SYSTEMS  2.6 GASTERREECS)  3.1 PPITARY ENISPECT CONVERTER  3.2 STATINARY ENISPECT CONVERTER  3.3 SECONDARY ENESPECT CONVERTER  3.4 SECONDARY ENESPECT CONVERTER  3.5 SECONDARY ENESPECT CONVERTER  3.5 SECONDARY ENESPECT CONVERTER  3.6 HEAT PULP  3.6 HEAT PULP  3.6 HEAT PULP  3.6 HEAT PULP  3.7 CONDENSERS  3.8 HEAT PULP  3.9 SUPPLIENT ON THEMS  3.0 HEAT PULP  3.0 TOTAL MATERIAL STURMS  3.0 HEAT PULP  3.1 STREPARATION  5.1 SITE PREPARATION  5.2 STRUCTURES  5.3 SECONDARY  5.4 STRUCTURES  5.4 HEAT RECOVERY EQUITIONING & CONTROL  5.5 STRUCTURES  5.6 HEAT PULP  5.7 CONTRINGENCY  5.6 SUPPLIENT OF THEMS  5.7 CONTRINGENCY  5.7 STRUCTURES  5.8 SUB-TOTAL  5.9 STRUCTURES  5.9 SUPPLIENT OF THEMS  5.9 STRUCTURES  5.9 SUPLIENT OF THEMS  6.1 TOTAL CAPITAL COST ESTIMATE  TOTAL CAPITAL COST ESTIMATE  TOTAL CAPITAL COST ESTIMATE  TOTAL CAPITAL COST ESTIMATE  TOTAL CAPITAL CAPITAL			10401		.0	ė
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3.3 SECONDARY ENERGY CONVERTER  3.4 SECONDARY ENERGY CONVERTER  3.5 BOTTOHING CYCLE VAPOR GENERATOR  3.6 HEAT RECOVERY EQUIPHENT  3.7 CONDENSERS  3.8 HEAT PUTP  5.8 HEAT PUTP  5.8 HEAT PUTP  5.8 HEAT PUTP  5.99  1136			6865.		6865.	j
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SUB-TOTAL   SUB-			ö		ö	ö
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HEAT REJECTION   0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	:	SUPPLEMENTARY HEAT(FURNACE, BOILER)		ė	ö	2991.
7.1 SITE PREPARATION 7.2 STRUCTURES 7.3 ELECTRICAL CONDITIONING & CONTROL 1. 1140. 1141. 1158. 1138. 1138. 7.2 STRUCTURES 7.3 ELECTRICAL CONDITIONING & CONTROL 1. 1140. 1141. 1150. 1141. 1150. 1141. 1150. 1141. 1150. 1141. 1150. 1141. 1150. 1141. 1150. 1141. 1150. 1141. 1150. 1141. 1150. 1150. 1141. 1150.	•	HEAT REJECTION		ė	ė	ö
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HOTRECT COSTS		SUB-TOTAL	<i>=</i>	1140.	1141.	520.
CONTINGENCY ENGINEERING AND FEES 14054. 3163. 17246. SUB-TOTAL TOTAL CAPITAL COST ESTIMATE 126754. 28463. 155217. 6 CCHSTRUCTION TIME (YEARS) 3.		INDIRECT COSTS				
ENSINEERING AND FEES 14054, 3163, 17246, 308-TOTAL SUB-TOTAL 32662, 7379, 40241, 1 1 TOTAL CAPITAL COST ESTIMATE 126754, 28463, 155217, 6 CCHSTRUCTION TIME(YEARS) 0. 3. 3. GADITAL CAST ENDBORTHOR		CONTINGENCY	18778.	4217.	22995.	965.
32862. 7379. 40241. 168  ATE 126754. 28463. 155217. 651  0. 3. 3.		EXCINEFRING AND	14054.	3163.	17246.	723.
ATE 126754, 28463, 155217, 651		SUB-TOTAL	32862.	7379.	40241.	1688.
134.213		TOTAL CAPITAL COST ESTIMATE	126754.	28463.	155217.	6511.
		CONSTRUCTION (INC. TEARS)	0.			

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NON	COCENERATION
SELECTED	TECHNOLOGY

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ARRIAL COSTS	OPERATING COSTS 1990. (K\$/YR) NATURAL GAS PETROLEUM DISTILLATE PETROLEUM RESIDUAL COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL COAL LIHESTONE/DOLOMITE	TOTAL FUEL COST  ELECTRICITY STAND-BY CHARGE O & H COST	TOTAL OPERATING COSTS	ELIZED OP ELIZED FI ELIZED AN T SAVINGS T SAVINGS I SAVINGS	PLANT ENTSSIONS(TON/YR) SULFUR DIOXIDE HITROCEN OXIDES HYDROCAPSONS PARTICULATES SUBIOTAL	UTILITY EMISSIONS(TOM/YR) CULFUR DIOVIDE MITROSEM OXIDES HYDRCCAREONS PARTICULATES SUBIOTAL TOTAL	ENISSIONS SAVINGS RATIOSULEUR DIOXIDE NITROGEN OVIDES HIDEOCRAPENS PARTICULATES TOTAL SOLIO MASIES

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CEPTIAL CUST (THOUSARDS OF MILLAMS)	6537.	166805.		Divi
LIPE-CYCLE COST (THOUSANDS OF BOLLARS)	886274.	615923.		isio
AUGUAL) (*P. CI)SIS (THOUSANDS OF BULLAKS)	7.63	76.41		n
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NET PRESENT VALUE OF TOCKEMENTAL CASH FLOW TRIGGER, MESUS MONOUGEN, - (THOUSANDS OF DOLLARS))	= 131605.	05.	GE II	
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AVERAGE ENERGY REQUIREMENTS

NO. 7 SIC 2621 WRITING PAPER HILL

TIME FRAME = 1990.

STRATEGY : MATCH-E

SELECTED TECHNOLOGY = 10.14 ADVANCED TECHNOLOGY, GAS TURBINE, DIRECT FIRED, COAL GASIFIER

TONS) TON)

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	SELECTED TECHNOLOGY	HON COGENERATION
		# # # # # # #
FUEL UTILIZATION ( 10**12 BTU)	c	16. 75
DETECTION DISTILLATE		6.0
PETROLEUM RESIDUAL	0.0	23.11
COAL GAS	0.0	0.0
DERIVED	0.0	0.0
COAL DERIVED RESIDUAL	0.0	
COAL	74.95	_
OTHER	0.0	0.0
TOT FUEL CONSUMPTION 10**12 BTU)		
SITE SOURCE	74.95	111.59
IND BYPRODUCT FUEL (10**12 BTU)	16.19	
TOTAL ELECTOTA CONCIMENTON		
CIDERS LESS CONSOLITION	5,39	5.54
(10**12 BTU) FUEL ENERGY	74.95	'n
FIECTOTOTY PURCHASED		
(HMX 6**01)	0.0	5.54
(10**12 BTU) FUEL ENEKGY	0.0	59.07
TOT FUEL ENERGY SAVE (10**12 BTU)		
	36.44	0.0
SOURCE	36.44	
TOT OIL AND GAS SAVE(10**12 BTU)	37.86	0.0
NATURAL GAS SAVINGS		
(10*+12 BIU)	14.75	
(10**9 CU FT)	15.86	0.0
OIL SAVINGS		
(10**12 BTU)	23.11	
EQUIV. ESLS	3.98	0.0
COAL SAVINGS (SOURCE)		
(10**12 BTU)	-1.42	3.0
(10**6 TDNS)	-0.07	

NO.	COCEMERATION
SELECTED	TECHNOLOGY

0.327 0.0 0.327 0.0	0.0 1.000	1.269 0.0	0.0 0.886	0.0 0.0	1.0 0.0	17.63 0.0	2.0 0.0	0.180 0.0	0.840 0.0	1.000 0.0	0.610 0.0	0.114 0.0 0.0 0.0	0.878 0.0		0.0 0.0 0.615 0.0	0.00	0.878 0.0	350. 1335. 4. 8. 0.0 0.0
FUEL ENERGY UTILIZATION RATIOS FUEL ENERGY SAVINSS RATIO SITE SOUPCE	U/U(0)	ECS FUEL/U(0)	F/U(0)	SPECIFIED FUEL/U(0)	EHERGY CONVERSION SYSTEM DATA DESIGN OPTION	ECS SIZE (MM)	NO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE WASTE HEAT RATIOA	AVOL HASTE HEAT RATIO,R'HG	HEAT	BL HASTE HEAT RATIO,R'-300 BL WASTE HEAT RATIO,R'!IW	TOTAL R	WASTE HEAT	RECOV HASIE MEAL RATIO,R-700 RECOV,WASTE HEAT RATIO,R-500	MATIO,R-300 MATIO,RHH	TOTAL R	AUVILIARY FOHER REGUIPEDIKH) AUX THEPHAL PEGLIO**6 BTU) COP CF HEAT PUNP

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NOH-COGENERATION) U = UTILITY FUEL

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PLANT	
TYPICAL	
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ACCOURT 114G	(000 \$)
CAPITOL COST	

LOGY *** HON-COGEN H TOTAL TOTAL	3565. 585. 0. 0. 3565. 585.		6		47	7.5		3013. 0.		0.			2328. 0.		6785. 0.	.0	594. 2419.	.0		311. 39.	m	17. 60. 443. 452.		6284. 786.	4713. 589. 10996. 1375.	42414. 5304.
***** SELECTED TECHNOLOGY EQUIPHENT INSTALLATION	1198. 0. 1198.		Ġ	ó	32.	4197.		977.	0	ö			562.	; <b>.</b>	1539.	ó	137.	ò		311.	• ;	11. 322.		1479.	1109.	9981.
**** SELE	2368. 0. 5.		O	•	85.	15833.		2035.	1444.	ċ			. 60/1		5246.	6	457.	ė		0	115.	, 122.		4805.	3604.	32433.
COST CATEGORY	1.1 FUEL STORAGE AND RETRIEVAL 1.2 LIMESTONE STORAGE AND RETRIEVAL 1.3 WASTE HANDLING SYSTEMS SUB-TOTAL	2. ECS HEAT SOURCE	2.1 HEAT SOURCE		2.3 FEED WATER SYSTEMS 2.4 GASTETED/FCS)		3. ENERGY CONVERSION SYSTEM(ECS)	3.1 FRIMARY EMERGY COMVERTER	3.2 PRIMARY GENERATOR/INVERTER		3.4 SECCHOARY GENERATOR	3.5 EULIONING CICLE VAPOR GENERALDR			SU3-T0TAL	4. THERMAL STORAGE	5. SUPPLEHENTARY HEATTFURNACE, BOILER)	6. HEAT REJECTION	7. OTHER BALANCE OF PLANT ITEMS	7.1 SITE PREPARATION	STRUCTURES	7.3 ELECTRICAL COMPILIONING & COMPOL SUB-TOTAL	8. INDIRECT COSTS		6.2 ENGINEERING AND FEES SUB-TOTAL	TOTAL CAPITAL COST ESTINATE

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NOF	COGENERATION
SELECTED	TECHI:0LOGY

ARRUAL COSTS

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OPERATING COSTS 1990. (K\$/YR) HATURAL GAS FETROLEUM DISTILLATE PETROLEUM RESIDUAL COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL DINER LIMESTONE/DOLONITE	TOTAL FUEL COST	ELECTRICITY STAND-6Y CHARGE 0 & M COST	TOTAL OPERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED ANHUAL COST COST SAVINGS COST SAVINGS	ENVIRONHEHTAL IMPACT PLANT ENISSIONSTON/YR) SULEUR DIOXIDE NITROSEN OXIDES HIDROCAPEONS PARTICULATES SUBTOTAL	UTILITY EMISSIONS(TON/YR) SULUR DIOXIDE HITFOCEM OXIDES HYD*OCAFEONS PARTICULATES SUBIOTAL TOTAL	ENISSICHS SAVINGS RATIO SULFUS DIOCIDE HITPOGEN OXIDES HOPPCCAPEONS PARTICULATES TOTAL	SOLIO RASILA

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DMAR ALIVE-INDUSTRIAL CASE TRE PUBLISHAR STIFFG PACER OILL THRAITING THE PERFORMAL MANIET POLITICAL CASTELLER

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DEPRECIATION-SUM-OF-INC-YEARS DIGITS METHOD

FEFFER CHARGE RATE OF INCESTIGET CAPIFAL & 10.1% FIRED CHARGE RATE OF INVESTIGET CAPIFAL & 10.1% CATEFAL INFORTION RATES 0.04

	NONCOCEN	COGEN	
CAPITAL COST CHANISCADE OF DULLARS)	5325.	45575.	
LIFE-CYCLE COST (PHANSARDS OF DULLARS)	330253.	209921.	
ACTUALIZED CUSTS (TRUBSAMIS DE BILLIARS) ETREP PUR TON	9.35.	4583.	
NATURAL GAS RESCALATION NATES 3.06	0.	0	
PISTHEATE SESCALATION RATES 1.04	0	•	
RESIDUAL : ESCALATION RAIL - 1.0%	10265.	0	
COAL : LSCALATION RATE - 1.0%	•	. 9 70 4.	
LUAL GAS & WINER SESCOLATION MAINS 1.68	•	0	
CITCIFILITY SEALAIIN RATE - 1.08	11744.	ċ	
JIEM, PAS, FIC. : INFLAILIN NATE = 0.06	161.	918.	
HITAL STSTEM	22754.	14205.	
LEVELIZED ANNUAL COST SAVINGS RATIO = 0.376	ş		0
ADDITAL UTGETT 218767. (TUNS) LEVELIZED CHERY COSTTYTON) •	104.61	64.43	PRIGIN POO
unalSCHuraleD PAYNACK PERTID	0 YFARS		'AL R <sub>Q</sub>
DESCRIPTED CASH FLUM MATE OF RETURN = 18.8	<b>*</b>		PA UA
HELL PRESENT VALUE OF THEREMENTAL CASH FLUM (COTEN. MINUS NONCHERN IFHUISANDS OF HILLARS))	u	61984.	GE II LITY
S SAN SIN ARMITAL DATINGS THE PARTY IN			3

•	104.61	64.43
HAVISCHIMIED PAYBACK PERIND	. S.O VEARS	

BASSO ON ARMOM DAIPUT OF PRIDOLT

HAS AN UNCHANGING VALUE IN TERMS OF CONSTANT PURCHASING POWER AND GROWS ANDJULLY AT THE GENERAL INFLATION RATE

		-			-		-
COST OF PUBL	a	÷	¥	3. T. LFFECTIVE TAX KATE	18	50. x	×
COST OF COMMON EQUIPM	4			ECONOMIC LIFE	11	30.	YKS
COST OF PREFERRED EDUITY	4	•	,,	IAX LIFE	н	15.	15. YRS
0111 Cap111C124110N	-1	30.	<b>,</b>	INVESTMENT TAX CAEDIT	H	10. *	*
COMMON SPORK CAPITALIZ.	ч	10.	•	INSUPANCE & DINEM TAKES	10	ŗ.	
PPSTERMED STORK CAPITALIZE	1	· ·	•	INCKEMENTAL LAPITAL INV.	н	0 ×	×

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AVERAGE ENERGY REQUIREMENTS

NO. 7 SIC 2621 HRITING PAPER HILL

TONS) TON)

TIME FRAME = 1990.

STRATEGY : MATCH-E

SELECTED TECHNOLOGY

= NO.18 ADVANCED TECHNOLOGY, GAS TURBINE, CLOSED CYCLE, COALLAFB)

NON COGENERATION	# # # # # # # # # # # # # # # # # # #		14.75	23.11	0	0.0	0.0	73.53	0.0	:	111.39	61.91	in the	<b>.</b>		59.07	•		0.0			0.0		0.0			0.0
SELECTED TECHROLOGY	1	,	9 6		9	0.0	0.0	64.69	0.0	67 67	69.69	61.91	5.78	64.69	•	9 0	- 4	41.90	37.86		14.75	15.86	23.11	3.98		40.4	0.19
		FUEL UTILIZATION ( 104#12 BTU)	NATURAL GAS	PETROLEUM RESIDUAL		COAL DERIVED DISTILLATE	DERIVED	כסאר	OTHER	TOT FUEL CONSUMPTION (10#412 BTU)	SOURCE	IND BYPRODUCT FUEL (10**12 BTU)	TOTAL ELECTRIC CONSUMPTION	(10**12 BTU) FUEL ENERGY	ELECTRICITY PURCHASED	(10**12 BTU) FUEL ENERGY	TOT FUEL ENERGY SAVE (104%)2 BTU)	SOURCE	TOT OIL AND GAS SAVE(10**12 BTU)	HATURAL GAS SAVINGS	(10**12 BTU)	(10***) CU FT)	(10** 2 BTU)	EGUIY. BBLS	COAL SAVINSS (SOURCE)		(10 ++6 10 12)

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• •	1.000	<b>.</b>	9.896	0.0	•	•	<b>a</b> .o	0.0	• •	9.0	0.0	900	0.0	0.0	٥.٥	D 0.		0.0	1335.	0.0
0.376	0.0	1.176	0.0	9.0	0. 0.	18.90	2.0	0.153	906.0	0.0	0.543	0.102	0.850	0.0	0.0	0.438	0.042	0.824	2909.	0.0
FUEL EHERGY UTILIZATION RATIOS FUEL EHERGY SAVINGS RATIO SITE SOUPCE	עישנפו	ECS FUEL/VIO)	FAUOI	SPECIFIED FUEL/AM 4)	EIIERGY CONVERSI <b>on system data</b> Design option	ECS 512E (194)	NO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE MASTE HEAT RATIOA	AVBL HASTE HEAT RATIO,R'HG (1334 ADDATIVE)	AVBL MASTE HEAT RATIO,R'-700 AVBL MASTE HEAT BATTO,R'-500	HASTE HEAT HASTE HEAT	TOTAL R	HEAT	PECOV HASTE HEAT RATIO, R-700	RECOVINASTE MEAT MATIO,R-500 RECOVINASTE MEAT MATIO,R-500	MASTE HEAT RATIO, R IIH	TOTAL R	AUXILIARY POHER REQUIRED(KM)	OF HEAT

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NON-COGENERATION) U = UTILITY FUEL

CAPITOL COST ACCOUNTING FOR TYPICAL PLANT (\$ 000)

EQUIPMENT INSTALLATION TOTAL  2505. 1329. 3033. 426. 4174. 46774. 4186. 2546. 4774. 9. 0. 0. 0. 0. 10029. 4126. 16905. 9. 0. 0. 0. 10029. 4126. 16905. 9. 0. 0. 0. 1342. 432. 1775. 9. 0. 0. 0. 4463. 1454. 5917. 9. 304. 304. 147. 0. 147. 190. 121. 320. 147. 0. 147. 200. 2142. 4169. 3002. 2142. 4609.	EQUIPMENT INSTALLATION TOTAL TOTAL  2505. 1329, 3033. 59 1 1257. 1196. 2454. 4160. 2564. 4774. 56 30. 10629. 6114. 16905. 47 10629. 6114. 16905. 47 10629. 6114. 16905. 47 10629. 6114. 16905. 47 10629. 6114. 16905. 47 10629. 6114. 16905. 47 10629. 6114. 16905. 47 10629. 6114. 16955. 47 10620. 6114. 16955. 47 10620. 6114. 179. 241 10620. 10620. 1607. 1607. 530 1064. 3749. 10753. 1377. 530	2505. 1329. 3933. 59 L 1257. 1196. 2454. 4074. 50 4160. 2564. 6774. 50 36. 12. 50. 47 10629. 6126. 16955. 47 10629. 6126. 16955. 47 10629. 6126. 16955. 47 10629. 6126. 16955. 47 10629. 6126. 16955. 47 10629. 6126. 16955. 47 10629. 6126. 16955. 47 10629. 6126. 16955. 47 10629. 121. 320. 6145. 356. 556. 455 10629. 2142. 6145. 76 10629. 1607. 4609. 556 1063. 16451. 41477. 530		1135 ****	***** SELECTED TECHNOLOGY		NON-COGEN
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SFART-OP CALS = 1990. MASE YEAR OF CAST ESTIMATES = 1970. APPRECIATION-SOM-OF-THE-YEARS DIGITS MEIND	ALTOKULAK CUST-UK-CAPITAL = 5.3x PIXEU CHAKUR KATE UM INVESTMENT CAPITĀL GUNEKAL INFLATION KATE= 0.0x		CEPTTAL CUST (THOUSENDS OF HALLARS)	LIPP-CYCLE CUST (THINUSANDS OF BULLAKS)	ARRHALIZED COSTS (THUDSANDS DE BOLLARS) FIXED FORTION RAIDRAL GAS FESCALATION RATE= 3 OLSTILLATE FESCALATION RATE= 3	GUAL GUAL GAS & UTMEN GLECTMIGHTY	OLM, BAS, ETC.	LEVEL 12:0 ANDAL COST SAVIDES RATIO = 0.	LEVELIZOU DUTPUT 218757.( MUL LEVELIZOU SUBRUT COSTESZTON)	andstantite PAYBACK PERMO	DISCOUNTED CASO FLOW MATE OF RETURN	ACTORER, MINUS DE INCHEMENTAL CASH FLUM (COSEN, MINUS MINUCHEM, - (LANGSAMDS OF NOTLARS)) MASSER ON AMINAL DUFFOL OF PRIBARE	74.0.7 F.Co.4	COST OF PEST	COST DE PRESENTATO FOULTY OVER CHEMICAL STATE OVER STATE STATE OVER STATE OVE	
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AVERAGE ENERGY REQUIREMENTS

NO. 8 SIC 2631 CORRUGATED PAPER HILL

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TIME FRAME = 1990.

STRATEGY : MATCH-E

SELECTED TECHNOLOGY

= NO. 2 CURRENT TECHNOLOGY, STEAM TURBINE, 615 PSIA(EXT), COAL

	SELECTED TECHNOLOGY	HON COGENERATION
	# # # # # # # # # # # # # # # # # # #	3 9 1 1 1 9
FUEL UTILIZATION ( 10**12 BTU)		
URAL GAS	0.0	143.37
PETROLEUM DISTILLATE	0.0	0.0
PETROLEUM RESIDUAL	0.0	26.96
COAL GAS	0.0	0.0
	0.0	0.0
COAL DERIVED RESIDUAL	0.0	
COAL	437.29	56
OTHER	0.0	0.0
TOT FUEL CONSUMPTION(10**12 BTU)		
	437.29	505.78
SOURCE	437.29	505.78
IND BYPRODUCT FUEL (10*#12 BTU)	300.15	300.15
TOTAL ELECTRIC CONSUMPTION		
(10**9 KI;H)	20.28	
(10**12 BTU) FUEL ENERGY	437.29	202.42
CLEATOTOTA OLIDONAGED		
110**9 FUED	0 0	19.26
(10**12 BTU) FUEL ENERGY	0.0	205.42
TOT FUEL EMERGY SAVE (10**12 BTU)	0 7	
SOURCE	67.09	9 9
IUI UIL AND GAS SAVEIIO**12 BIUJ	62.042	• •
	1	
10**12	143.37	
(10**9 CU FT)	154.13	0.0
OIL SAVINGS		
(10**12 BTU)	96.95	0.0
EQUIV. EBLS	16.71	
COAL SAVINSS (SOURCE)		
(10**12 BTU)	-171.80	0.0
(10**6 TONS)	-7.97	

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HOM	COGENERATION
SELECTED	TECHNOLOGY

0.0	1.000	0.0	1.462	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	, , , , , , , , , , , , , , , , , , , ,	0.0	.3605	25. 0.0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
0.135	0.0	2.129	0.0	0.0	10.0	48.25	2.0	0.155	906.0	0.0	0.0	0.0	0.66 <b>5</b>	0.865	0.0	0.0	0.0	0.743		0.850	9927.	146. 0.0	! ! ! !
FUEL EPPERGY UTILIZATION RATIOS FUEL EPPERGY SAVINGS RATIO SITE SOURCE	المريم.	ECS FUEL/U(0)	F/U(0)	SPECIFIED FUEL/U(0)	ENERGY CONVERSION SYSTEM DATA DESIGN OPTICH	ECS SIZE (MU)	NO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE WASTE HEAT RATIOA	AVBL MASTE HEAT RATIO,R'HG	AVBL WASTE HEAT RATIO,R'-700	HASTE HEAT	AVBL WASTE HEAT RATIO,R'300 AVBL WASTE HEAT RATIO,R'HW	TOTAL R	RECOV WASTE HEAT RATIO,RHG	RECOV HASTE HEAT RATIO,R-700	RECOV, WASTE HEAT RATIO, R-500	PECOV MASTE HEAT RATIO,R-300 DECOV MASTE HEAT PATTO.DHW		TOTAL R	AUXILIARY POWER REQUIREDIKM)	AUX THERNAL REG(10**6 BTU) COP OF HEAT PUNP	

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NOH-COGENERATION) U = UTILITY FUEL

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CAPITOL COST ACCOUNTING FOR TYPICAL PLANT (\$ 000)

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NON-COGEN TOTAL		1642.	; <i>;</i>	1842.		<i>i</i> •	1753.	1753.			o o	<i>.</i>		•	<i>.</i>		•	8948.	.0		139.	1236.	1488.		2806.	2105.	18942.	0. 19013.
SY ### TOTAL		0373.	776.	11939.		28531.	1400.	54023.		8006.	3097.				189.	11291.	0	2703.	424.		613.	754.	1775.		16431.	12323. 28754.	110908.	3.
***** SELECTED TECHNOLOGY QUIPHENT INSTALLATION		3303.	136.	4300.		12631.	502.	13891.		587.	ó				38.	625.	0	695.	156.		813.	. 9	938.		4121.	3091. 7212.	27818.	3.
**** SELE		6070.	638.	7638.		15900.	699.	60131		7419.	3097.	<i>.</i>		ö	151.	10667.	.0	2008.	268.		ö	754.	837.		12310.	9232. 21542.	63090.	0. 89505.
COST CATEGORY	. FUEL/WASTE HANDLING AND STORAGE	1.1 FUEL STORAGE AND RETRIEVAL			2. ECS HEAT SOURCE		2.2 SPECIAL EMISSIONS COMIROLS 2.3 FEED HATER SYSTEMS		3. ENERGY CONVERSION SYSTEM(ECS)	3.1 PRIMARY ENERGY CONVERTER		SECONDARY	3.5 BOTTOHING CYCLE VAPOR GENERATOR			3.8 HEAT FUNP SUB-TOTAL	. THERITAL STORAGE	5. SUPPLEMENTARY HEAT(FURHACE, BOILER)	S. HEAT REJECTION	7. OTHER BALANCE OF PLANT ITEMS	7.1 SITE PREPAZATION		7.3 ELECTRICAL COMPLISORING & CONTROL SUB-TOTAL	B. INDIRECT COSTS		8.2 ENSINEERING AND FEES SUB-TOTAL	TOTAL CAPITAL COST ESTIMATE	CCHSTRUCTION TINE(YEARS) CAPITAL COST EXPERIITHRE
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101	COGENERATION
SELECTED	<b>TECHNOLOGY</b>

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AIRIUAL COSTS	OPERATING COSTS 1993, (K\$/YR) NATURAL GAS PETROLEU! DISTILLATE PETROLEUH RESIDUAL COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL OTHER LIMESTONE/DOLOHITE	TOTAL FUEL COST ELEC:PICITY STA:D-BY CHARGE O & M COST	TOTAL OPERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED ARMUAL COST COST SAVINGS COST SAVINGS RATIO ENVISORMENTAL IMPACT	PLANT EMISSIONS(TON/YR) SULEN DIOXIDE NITRCGEN OVIDES HADPOCAPBCHS PARTICULATES SUBTOTAL	UTILITY EMISSIONS(TOHZTR) SULFUZ DIONIDE MITROSEM ONIDES MIDROSARDONS PAPTICULATES SUSTOTAL	TOTAL ENISSIGNS SAVINGS RATIO SULFUR DIGNIDE HITPCARH ONIDES HIGROCAFBONS PARTICULATES	TOTAL SOLIO WASTES

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FIXED POFILDS
GAINMAL GAS RESCALATION RAILE 3 LIFE-CYCLE COST (TOMOSANDS OF DOLLARS) CAPITAL COST (INDOSANDS OF DOLLARS) hase teak or that estimates a lyta. O PERMITTAL DERINATION PAPER Sladfade nate a lyeu. CUAL CAS É OTMÉR FLECTRICTIV KESTOORL Cost firfac system CEM, TMS, LTC. PISTILLAB

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Systems Division

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FCR-1333

AVERAGE ENERGY REQUIREMENTS

NO. 8 SIC 2631 CORRUGATED PAPER MILL

= NO. 8 ADVANCED TECHNOLOGY, STEAM TURBINE, 615 PSIALEXT), COALLAFB) STRATEGY : OPTIMUM

TONS) TON)

TIME FRAME = 1990.

SELECTED TECHNOLOGY

¥ Ş	COGENERATION
SELECTED	TECHHOLOGY

SUITILIATE	FUEL UILLIZALIUN ( 10**12 BIU) NATURAL GAS	0.0	143.37
0.0 0.0 0.0 394.62 394.62 394.62 394.62 394.62 51.23 394.62 51.23 394.62 51.23 54.62 51.23 54.62 54.63 5	ROLEUM DISTILLATE	0.0	0.0
0.0 0.0 0.0 394.62 394.62 394.62 394.62 394.62 394.62 51.23 394.62 54.02 111.16 111.16 111.16 143.37 143.37 154.13 16.71 16.71	TROLEUM RESIDUAL	0.0	96.92
0.0 394.62 394.62 306.15 300.15 300.15 300.15 31.23 394.62 394.62 300.15 31.23 394.62 300.15 31.23 394.62 395.62 395.	IL GAS	0.0	0.0
994.62 2 394.62 2 394.62 5 394.62 5 394.62 5 394.62 5 394.62 5 394.62 5 40.23 2 40.29 6.92 15 16.71 16.71	DEPIVED	0.0	0.0
394.62 394.62 394.62 394.62 300.15 300.15 311.16 111.16		0.0	o. 0
94.62 394.62 394.62 394.62 51.23 394.62 8.26 8.26 8.26 111.16	يد	394.62	565.49
394.62 394.62 394.62 500.15 394.62 5.40.23 143.37 143.37 154.13 16.71 16.71	IER	0.0	0.0
394.62 5 394.62 5 300.15 3 21.23 2 21.23 2 8.26 88.14 2 8.26 88.14 2 111.16 11.16 111.16 111.16 111.16 11.16 11.16 11.16 11.16 11.16 11.16 11.	FUEL CONSUMPTION 10**12 BTU)		
394.62 5 BTU) 300.15 3 394.62 3 394.62 8 8.26 88.14 2 111.16 11.16 11.16 11.16 11.16 11.16 11.16 111	<u></u>	394.65	505.78
8.26 88.14 2 8.26 88.14 2 8.26 88.14 2 81.01 111.16 11.16 11.	JACE	394.62	505.78
21.23 394.62 8.26 88.14 2 87U) 111.16	BYPRODUCT FUEL (10**12 BTU)	300.15	300.15
21.23 8.26 8.26 8.26 8.26 88.14 210.14 10.**12 BTU) 111.16 111	AL ELECTRIC CONSUMPTION		
ERGY 394.62  B.26  ERGY 88.14  [10**12 BTU) 111.16  111.16  113.37  143.37  154.13  -129.13 -5.99	0**9 KET	21.23	19.56
8.26 (10**12 BTU) 111.16 111.16 10**12 BTU) 240.29 143.37 154.13 96.92 16.71	0**12 BTU) FUEL ENERGY	394.62	205.42
8.26  U) FUEL EMERGY 88.14  ERGY SAVE (10**12 BTU) 111.16  111	CTRICITY PURCHASED		;
### ##################################		8.50	19.20
ERGY SAVE (10**12 BTU)  111.16  GAS SAVE(10**12 BTU)  SAVINGS  143.37  17)  154.13  196.92  S (SOURCE)  -129.13	0**12 BTU) FUEL ENERGY	47.14	202.42
111.16 111.16 111.16 111.16 111.16 111.16 111.16 111.16 143.37 154.13 154.13 16.71 5 (SOURCE) -129.13 -13.13	FUEL ENERGY SAVE (10**12 BTU)		
111.16  GAS SAVE(10**12 BTU) 240.29  SAVINGS 143.37  U) 154.13  16.71  S (SOURCE) -129.13	111	111.16	0.0
GAS SAVE(10**12 BTU) 240.29 SAVINGS U) 143.37 154.13 U) 96.92 S (SOURCE) -129.13	UPCE	111.16	0.0
SAVINGS 143.37 11.37 154.13 154.13 10) 10 10 10 11 10 11 11 12 13 15 15 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 18 17 18 17 18 18 18 18 18 18 18 18 18 18 18 18 18	OIL AND GAS SAVE(10**12 BTU)	240.29	0.0
143.37 154.13 16.92 10) 16.71 5 (SOURCE) -129.13	URAL GAS SAVINGS		
FT) 154.13 96.92 5 16.71 5 (SOURCE) -129.13 5.99	0**12 BTU)	143.37	0.0
96.92 5 16.71 5 (SOURCE) -129.13		154.13	0.0
96.92 16.71 16.71 -129.13	SAVINGS		
16.71 -129.13 -5.99	0**12 BTU)	26.95	0.0
-129.13	UIV. BBLS	16.71	0.0
-129.13	L SAVINGS (SDURCE)		
-5.99	0**12 BTU)	-129.13	0.0
	101151	-5.99	0.0

SELECTED NON
TECHNOLOGY COGENERATION

FI

9.0	1.000	0.0	1.462	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	5098. 22. 0.0
0.220	0.459	1.492	0.0	0.0	6.4	29.31	2.0	0.078	0.917	0.0	0.601	0.113	0.866	0.0	0.0	0.467	970.0	14458. 0.0
FUEL EHERGY UTILIZATION RATIOS FUEL EHERGY SAVINGS RATIO SITE SOURCE	טעונסו	ECS FUEL/U(0)	FAIROD	SPECIFIED FUEL/U(0)	EHRBY CHIVERSION SYSTEM DATA DESIGN OPTION	ECS SIZE (THI)	HO. OF URITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE MASTE HEAT RATIOA	AVIST HASTE HEAT RATIO,R'HG	AVBL HASTE HEAT RATIO,R'-700 AVL! HASTE HEAT RATIO,R'-500	WASTE HEAT WASTE HEAT	TOIAL R	WASTE HEAT	RECOV.WASTE MEAT WATTO.R-700 RECOV.WASTE HEAT WATTO.R-500	RECOV HASTE HEAT HATIO,R 300 RECOV HASTE HEAT HATIO,RHH	R 1019I	AUSTRIARY POWER REQUIREDIEM) AUSTRIAL GERTIONNE BIUT COP OF HEAT PUMP

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) UCO) - UTILLIT FUEL CHOM-COGENERATION U - UITITIY FULL

	COST CATEGORY	**** SELEC	***** SELECTED TECHNOLOGY QUIPHENT INSTALLATION	* =	NON-COGEN TOTAL
ä	FUEL/WASTE HANDLING AND STORAGE	; ; ; ; ; ; ;		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	 
	1.1 FUEL STORAGE AND RETRIEVAL 1.2 LIMESTONE STORAGE AND RETRIEVAL	5945.	3230.	9174.	1642.
	1.3 MASTE HAIDLING SYSTEMS	1073.	146.	1219.	
	SUB-101AL	9413.	5752.	15165.	1842.
ζ.	ECS MEAT SOURCE				
		22758.	11379.	34137.	ė
			ė	ö	ö
	2.3 FEED WATER SYSTEMS 2.4 GASTETEDIFCS)	619.	<b>4</b> 52.	1271.	1753.
		23577.	11631.	35408.	1753.
ri.	ENERGY CONVERSION SYSTEM(ECS)				
	3.1 PRIMARY ENERGY CONVERTER	5165.	169	5514	G
		2222.		2222.	
	3.3 SECONDARY ENERGY CONVERTER	ė		•	•
		ö	ö	ó	ė
		ė.	•	•	
	3.6 HEAT RECOVERY EQUIPMENT		o į	•	<i>.</i>
	3.7 CONDENSERS	. 223.	. 26	279.	
		7610.	405.	8015.	
•	T'ERMAL STORAGE	ó	ċ	٥	ė
s.	SUPPLEMENTARY HEATIFURNACE, BOILER)	258.		348.	8948.
			,		
÷	HEAT REJECTION	414.	231.	644.	ė
7.	OTHER BALANCE OF PLANT ITEMS				
		•	607.	607.	139.
	STRUCTURES	643.	•	643.	1236.
	7.3 ELECTRICAL COMBILICATIVE & CURINGL SUB-TOTAL	161.	.86.	460. 1711.	113.
ø.	INDIRECT COSTS				
		9	6		
	8.2 ENGINEERING AND FEES	6314.	2879.	9193.	2105.
	SUB-TOTAL	14733.	6718.	21451.	4911.
	TOTAL CAPITAL COST ESTIMATE	56828.	25913.	62741.	18942.
	CONSTRUCTION TIME(YEARS)	.0	3.	m' e	0
	CAPL'AL COST EXPERIITORE	.0000	.76//2	. 21999	19018.

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4	OPERATIES COSTS 1990. (K#/YR) (LATURAL GAS PETROLEUM DISTILLATE PETROLEUM RESIDUAL COAL DERIVED DISTILLATE COAL COAL OTHER LIMESTONAE/DOLOMITE	TOTAL FUEL COST ELECTRICITY STAMD-BY CHARGE 0 & M COST	TOTAL OPERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED ANAUL COST COST SAVINGS COST SAVINGS RATIO ENVIROREHIAL IMPACT	PLANT ENISSIONS(TON/YR) SULFUR DIOXIDE NITROSEN OXIDES H1DROCARBONS PARTICULATES SUETOTAL	UTILITY EMISSIONS(TON/YE) SULFUR DIOXIDE NITROSEN GXIDES HYDROCARBONS PARTICULATES SUBTOTAL	EMISSICHS SAVINGS RATIO SULFUR DIOXIDE MITFOGEN OXIDES HIDPOCARBONS PERTICULATES TOTAL

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			MUNCOCEN	1.018.	104726	91.65 0 0 21~1	0 0 4 5 7	75095.		3.7	1 42 5		11		POKEN TEON	1 1 1	12.4	d ● 0 1
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34.60	- 15. 8	0+-0 7: 00 94 KA		H-MOS &	=	<u> </u>			) ten	E1 V CBS 106/1	YBACK	F. O.	41 34 24035	1	Section 1	J Hotel	11.1	
1 4 4	DX-PA	1000		1	Est.	COST KI TUR SAS	E	, E	:	FOT Pr K4. T COS	¥ d -1.	£45H	4 V V	14 14	11.17.4	- 4	4/17	FIRS
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1.1 - 1 HOLDONY CONTROL PERING SINGLED HIND HOLD SHIP-- HINDS WILLIAM

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NO. 8 SIC 2631 CORPUGATED PAPER HILL

1045) 1049

TINE FRAME = 1990.

SELECTED TECHNOLOGY

STRATEGY : OPTIMUM

= 140.12 ADVANCED TECHNOLOGY, GAS TURBINE, DIRECT FIRED, PETR. BOILER GRO

-345-

SELECTED NON
TECHNOLOGY COGENERATION

,	143.37	0.0	96.92	0.0	0.0	0.0	265.49	0.0		505.78	505.78	300.15		19.26	205.42	;	19.56	205.42		0.0	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
•	0.0	0.0	541.91	0.0	0.0	0.0	-358.97	0.0		182.94	182.94	300.15		18.71	182.65	;	-33.66	-358.97		322.84	322.84	-301.62		143.37	154.13		-445.00	-76.72		624.46	29.97
FUEL UTILIZATION ( 10**12 BTU)	HATURAL GAS	PETROLEUM DISTILLATE	PETROLEUM RESIDUAL	GAS	DERIVED	COAL DERIVED RESIDUAL	COAL	ОТНЁЯ	TOT FUEL CONSUMPTION(10**12 BTU)	SITE	SOURCE	IND BYPRODUCT FUEL (10**12 BTU)	MOTIGHTS TOTOL STATE	(HH2 - 401)	(10**12 BTU) FUEL ENERGY	ELECIRICITY PURCHASED	( H2 * * * * * * * * * * * * * * * * * *	(10**12 BTU) FUEL ENERGY	TOT FUEL ENERGY SAVE (10**12 BTU)	SITE	SOURCE	TOT OIL AND GAS SAVE(10**12 BTU)	HATURAL GAS SAVINGS	(10**12 BTU)	(10**9 CU FT)	OIL SAVINGS	(10**12 BIU)	EQUIV. BBIS	COAL SAVINGS (SOURCE)	(10**12 BTU)	(10**6 TOHS)

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL)

U(0) = UTILITY FUEL (HON-COGENERATION)

U = UTILITY FUEL

0.0	1.000	0.0	1.462	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	000	0.0	0.0	0.0	ə .		0.0	5698.	0.0
0.373	-1.748	2.637	0.001	0.0	3.0	78.94	3.0	0.330	0.911	1.000	9.546	0.138		0.794	0.0	0.0	0.546	0.008	0.794	2492.	0.0
FUEL EHERGY UTILIZATION RATIOS FUEL EHERGY SAVINGS RATIO SITE SOURCE	U/U(0)	ECS FUEL/U(0)	F/U(0)	SPECIFIED FUEL/U(n)	EHERGY CONVERSION SYSTEM DATA DESIGN OPTION	ECS SIZE (MM)	NO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE WASTE HEAT RATIOA	AVBL MASTE HEAT RATIO,R'HG	WASTE HEAT RATIO,R'-	AVBL MASTE HEAT RATIO,R'-500	HASTE HEAT	TOTAL R	WASTE HEAT	MASTE HEAT R	PECOV, WASTE HEAT RAILO, R. 500	COV HASTE HEAT RATIO,RHH	TOTAL R	AUVILLARY POWER REQUIREDIKH)	OF HEAT PUMP

	COST CATEGORY	***** SELECTED TECHNOLOGY EQUIPMENT INSTALLATION	ECTED TECHNOLO	3GY *** TOTAL	NON-COGEN TOTAL
<u>-</u> :	FUEL/WASTE HANDLING AND STORAGE				
	1.1 FUEL STORAGE AND RETRIEVAL 1.2 LINESTONE STORAGE AND RETRIEVAL 1.3 HASTE HANDLING SYSTEMS SUB-TOTAL	2201. 0. 2201.	345 0. 450.	2546. 0. 2546.	1642. 0. 1842.
۶.	ECS HEAT SOURCE				
	2.1 HEAT SOURCE	• •	0 0	0 0	6 6
	2.3 FEED WATER SYSTEMS 2.4 GASIFIER(ECS)	456.	191.	647.	1753.
		456.	191.	647.	1753.
'n	ENERGY CONVERSION SYSTEM(ECS)				
		12600.	5021.	17621.	
	3.2 PRIMARY GENERATOR/INVERTER	7532.	<b>.</b>	7532.	
	3.4 SECONDARY GREEN CONVENIER 3.4 SECONDARY GENERATOR				
		•		ö	
		5635.	1753.	7389.	o ·
	3.7 COMDENSERS	<i>.</i> -			
		25766.	6774.	32541.	
<b>.</b>	THERMAL STORAGE		ė	ó	0
δ.	SUPPLENEUTARY HEAT(FURNACE, BOILER)	.0552	775.	3315.	8943.
ė	HEAT REJECTION	0	ö	ö	ö
۲.	OTHER BALANCE OF PLANT ITEMS				
		•	404	+0¢.	139.
	7.2 STRUCTURES 7.3 FLECTRICAL CONTROL	1280.		1280.	1236.
	SUB-TOTAL	1295.	425.	1720.	1488.
60	THDIRECT COSTS				
	CONTINGENCY	6452.	1702.	8154.	2806.
	8.2 ENGTHERING AND FEES SUB-TOTAL	4839.	1277. 2979.	6115.	2105.
	TOTAL CAPITAL COST ESTINATE	43548,	11489.	55037.	18942.
	CCHSTRUCTION TIMELYEARS) CAPITAL COST EXPENDITURE	44606.	1. 11768.	1. 56374.	0. 19018.

SELECTED NON TECHNOLOGY COGENERATION

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37878 0. 0. 0. 0.	37878.	26468. 0. 618. 64963.	72877. 1921. 74798. 0.0	4416.613 2905.667 116.227 92.981 7531.484	4881.945 2847.802 569.561 406.829 8706.133	•
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	69954.	-27752. 0. 6030. 48232.	53423. 5694. 59117. 15681. 0.210	8156.828 5366.332 214.654 321.900 14059.711	-8531.461 -4976.687 -995.337 -710.955 -15214.437	1 40 km 10
ARRUAL COSTS  OPERATING COSTS 1990. (K\$/YR) NATURAL GAS PETROLEUM DISTILLATE PETROLEUM RESIDUAL COAL GAS COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL	OTHER LIMESTONE/DOLOMITE TOTAL FUEL COST	ELECTRICITY STAND-BY CHARGE O & 11 COST TOTAL OPERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED AMMUAL COST COST SAVINGS COST SAVINGS RATIO	ENVIRONMENTAL IMPACT	UTILITY EMISSIONS(TON/YR) SULFUR DIOXIDE NITROGEN OXIDES HYDROCARBONS PARTICULATES SUBTOTAL	EMISSIONS SAVINGS RATIO SULFUR DIOXIDE MITROGEN OXIDES HYDROCARBONS PARTICULATES TOTAL SOLID WASTES

VEAKS DIGITS METHOD  1 = 3.5%  VE. MONCOCEN  U. O. O.  U. DULLAKS)  ANDS OF DULLAKS  ANDS OF DULKAS  ANDS OF DULLAKS  ANDS OF DULLAKS  ANDS OF DULLAKS  ANDS OF DULLAKS  ANDS OF DULLAKS  ANDS OF DULLAKS  ANDS OF DULLAKS  ANDS	START-UP DATE = 1990. HASE YEAR UP CHST ESTIMATES = 1978.					Pov
7.9x  NONCOGEN  19018. 56374.  19018. 56374.  1350263. 1079139.  6 0. 0. 0. 0.  6 0. 0. 0. 0.  6 14. 6030.  75591. 58674.  75591. 58674.  1,224  92.19 71.56  3.6 YEARS  27.5 %  153127.  11.56  27.5 %  27.5	DEPRECIATION-SUM-OF-THE-YEARS DIGITS METHOD					ver
AL CUST (THUUSANDS OF DULLARS)  LIZED CUSTS (THUUSANDS OF DULLARS)  LIZED CUSTS (THUUSANDS OF DULLARS)  LIZED CUSTS (THUUSANDS OF DULLARS)  THE SCALATION RATE = 3.68  UNAL GAS ESCALATION RATE = 1.04  LUSAL CAS CHAIND RATE = 1.04  LUSAL CAS CHAIND RATE = 1.04  LUSAL CAS CHAIND RATE = 1.04  LUSAL CAS CHAIND RATE = 1.04  LUSAL CAS CHAIND RATE = 1.04  LUSAL CAS CHAIND RATE = 1.04  LUSTS (THUUSANDS OF DULLARS)  AL SYSICH  LUSTS (THUUSANDS OF DULLARS)  AL SYSICH  LUSTS (THUUSANDS OF DULLARS)  LUSTS (THUUSANDS OF DULLARS)) = 153127.  AS STAND GAD ON ANHUAL OF PRUNDED  AS AN UNCHANGEN — (THUUSANDS OF DULLARS)) = 153127.  AS AN UNCHANGEN UNTERED OF PRUNDED  AS AN UNCHANGEN — (THUUSANDS OF DULLARS)) = 153127.  AS AN UNCHANGEN CUSTS (THE GENERAL INFLATION PATE OF DULLARS)  AS AN UNCHANGEN CUSTS (THE GENERAL INFLATION PATE OF DULLARS)  AS AN UNCHANGEN CUSTS (THE GENERAL INFLATION PATE OF DULLARS)  AS AN UNCHANGEN CUSTS (THE GENERAL INFLATION PATE OF DULLARS)  AS AN UNCHANGEN CUSTS (THE GENERAL INFLATION PATE OF DULLARS)  AS AN UNCHANGEN CUSTS (THE GENERAL INFLATION PATE OF DULLARS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CAS CHAINS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CUSTS (THE CAS CHAINS)  AS AN UNCHANGEN CAS CHAINS (THE CAS CHAINS)  AS AN UNCHANGEN CAS CHAINS (THE CAS CHAINS)  AS AN UNCHANGEN CAS CHAINS (THE CAS CHAINS)  AS AN UNCHANGEN CAS CHAINS (THE CAS CHAINS)  AS AN UNCHANG	*	7.0x				Syste
AL CUST (Thousands OF DULLARS)  LIZED CUSTS (Thousands OF DULLARS)  LIZED CUSTS (Thousands OF DULLARS)  LIZED CUSTS (Thousands OF DULLARS)  LIZED CUSTS (Thousands OF DULLARS)  LESCALATION RATE = 1.04  LESCALATION RATE = 1.04  LESCALATION RATE = 1.04  LEGAS (ESCALATION RATE = 1.0	:	NONCUCEN	COGEN	The same of the sa		ms
CYCLE COST (THOUSANDS DE DOLLARS)  112-0 COSTS (THOUSANDS DE DOLLARS)  1504. 4659.  1004. ESCALATION RATE = 3.68  100. 0.  1004. ESCALATION RATE = 1.08  1004. ESCALATION RATE = 1.08  1004. ESCALATION RATE = 1.08  1004. ESCALATION RATE = 1.08  1004. ESCALATION RATE = 1.08  1004. ESCALATION RATE = 1.08  1005. ESCALATION RATE = 1.08  1006. O. O. O. O. O. O. O. O. O. O. O. O. O.	CAPITAL CUST (THOUSANDS OF DOLLARS)	19018.	56374.			Divi
LITCE CUSTS (THOUSANDS UP DOLLARS)  LUAL GAS  WHAL GAS  TALLATE  TESCALATION RATE= 3.68  0.  TALLATE  TESCALATION RATE= 1.04  TESCALATION RATE= 1.04  TESCALATION RATE= 1.04  O.  TESCALATION PATE  O.  TESCALATION PA	LIFE-CYCLE COST (THUMSANDS OF DILLARS)	1390263.	1079139.		A REAL PROPERTY OF THE PROPERT	sior
### PUMPTION  ###################################	APPRIATEZED CUSTS (THOUSANDS UP DOLLARS)		9			ו
11LL.TE ::ESCALATION RAIL= 1.0%	:ESCALATION RATE:	• • • • • • • • • • • • • • • • • • • •	0.	The second secon		
100   1	SESCALAFION RATE		0.000			
L GAS & UTHER SESCALATION RATE = 1.04  CTRICITY SECALATION RATE = 1.05  AL SYSTEM  L GUIPUT  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL) ZATION  B 19933. (TUNS)  L GAPLETIAL  B 19933. (TUNS)  L GAPLETIAL  B 19933. (TUNS)  L GAPLETIAL  B 19933. (TUNS)  L GAPLETIAL  B 19933. (TUNS)  L GAPLETIAL  B 19933. (TUNS)  L GAPLETIAL  B 19933. (TUNS)	SCALATION XASES	0	0.	and the state of t		
1.45.ETC.	: ESCALATION RATE =	0	ć			
AL SYSIEM  ELIZED ANNUAL COST SAVINGS MATTU = 0.224  L DUTPUT  BEB933.(TONS)  12-EU THIRGY CUSTISATION  12-EU THIRGY CUSTISATION  12-EU THIRGY CUSTISATION  13-56  CHULLED PAYMACK PLRTUD  23-6 YEARS  CHULLED PAYMACK PLRTUD  23-6 YEARS  UNITEU CASH FLOM RATE OF RETURN = 27-5 %  RESENT VALUE OF INCHEMENTAL CASH FLOM  N. MINUS MONCHANGING VALUE IN TERMS OF DOLLARS)) = 153127.  ASED ON AMMUAL OUTPUT OF PRODUCT  ASED ON AMMUAL OUTPUT OF PRODUCT  AS AN UNCHANGING VALUE IN TERMS OF CONSTANT PURCHASING  OTHER AND GROWS AMMUALLY AT THE GENERAL INFLATION PATE  OF CROMEN EUGHTY = 2.4 EFFECTIVE TAX RATE = 2  OTHER AND GROWS AMMUALLY AT THE GENERAL INFLATION PATE  OF CROMEN EUGHTY = 0.4 TAX LIFE  CAPITALLY STREET = 2  OTHER AND CROMEN EUGHTY = 0.4 TAX LIFE  CAPITALLY STREET = 2  OTHER AND CROMEN EUGHTY = 0.4 TAX LIFE  CAPITALLY STREET = 2  OTHER AND CROMEN EUGHTY = 0.4 TAX LIFE  CAPITALLY STREET = 2  OTHER AND CROMEN EUGHTY = 0.4 TAX LIFE  CAPITALLY STREET = 2  OTHER AND CROMEN EUGHTY = 0.4 TAX LIFE	: FSCALATIUN RATE =	30221.	-31687.			
L DUIPUT B19933.(TONS)  L DUIPUT B19933.(TONS)  1250 THIRGY CUST15/10N)  Energy Cust16/10N)  CHUTTED PAYMACK PLRIUD  A 3.6 YEARS  CHUTTED PAYMACK PLRIUD  A 3.6 YEARS  CHUTTED PAYMACK PLRIUD  A 3.6 YEARS  T1.56  CHUTTED PAYMACK PLRIUD  A 3.6 YEARS  T1.56	INTAL SYSIEM	75591.	58674.			!
L DUTPUT B19933.(TUNS)  LED THE GAY CUSTISATION  ENERGY CUSTISATION  ENERGY CUSTISATION  CHURLED CASH FLOH RATE OF RETURN = 27.5 %  RESENT VALUE OF INCREMENTAL CASH FLOM  N. MINUS ROACHGEN (THOUSANDS OF BOLLARS)) = 153127.  ASED ON ANNUAL DUTPUT OF PRINDICT  ASED ON ANNUAL OUTPUT OF PRINDICT  AS AN UNCHANGING VALUE IN TERMS OF CONSTANT PURCHASING  ONE OF MALL  OF PREFERENCE FULLY = 2.4 EFFECTIVE TAX RATE = 10.7 PREFERENCE FUNCHING TO CONDITY = 6.3 LCONOMIC LIFE  OF PREFERENCE FULLY = 0.4 TAX LIFE  CAPITAL) ZATION  ENGLY  TOTAL OF THE CREDIT = 10.4 TAX LIFE  CAPITAL) ZATION  ENGLY  TOTAL OF THE CREDIT = 10.4 TAX LIFE  CAPITAL) ZATION  ENGLY  TOTAL OF THE CREDIT = 10.4 TAX LIFE  CAPITAL) ZATION  ENGLY  TOTAL OF THE CREDIT = 10.4 TAX LIFE  CAPITAL) ZATION  ENGLY  TOTAL OF THE CREDIT = 10.4 TAX LIFE  CAPITAL) ZATION  ENGLY  TOTAL OF THE CREDIT = 10.4 TAX LIFE  CAPITAL) ZATION  ENGLY  TOTAL OF THE CREDIT = 10.4 TAX LIFE  CAPITAL OF THE CREDIT	C	524				
CHUSTIED PAYMACK PLRIUD  E 3.6 YEARS  WHATEU GASH FLOW HATE UF RETURN = 27.5 %  RESENT VALUE OF INCREMENTAL CASH FLOW  N. WHAUS NOWCHARL OUTPUT OF PRODUCT  ASED ON ANNUAL OUTPUT OF PRODUCT  AS AN UNCHANGING VALUE IN TERMS OF CONSTANT PURCHASING  ONE AND GROWS ANGUALLY AT THE GENERAL INFLATION PATE  OF DIAL  OF DEAT  OF PREFERRED FULLITY = 6.% LCONOMIC LIFE  CAPITALL ATTOR  OF AN ALFE  CAPITALL ATTOR  OF AN ALFE  CAPITALL ATTOR  OF AN ALFE  CAPITALL ATTOR  OF AN ALFE  THE CAPITALL ATTOR  OF AN ALFE  THE CAPITALL ATTOR  OF AN ALFE  THE CAPITALL ATTOR  THE CAPITA	•	92.19	71.56			
HESENT VALUE OF INCREMENTAL CASH FLOW  N. MINUS HONGOUGHN (THOUSANDS OF DOLLARS)) = 153127.  ASED ON ANNUAL OUTPUT OF PRODUCT  AS AN UNCHANGING VALUE IN TERMS OF CONSTANT PURCHASING  OTHER AND GROWS ANNUALLY AT THE GENERAL INFLATION PATE  OF DEATH  OF DEATH  OF COMMON EQUITY = 2.4 EFFECTIVE TAX RATE = 10.4 TAX LIFE  OTHER OF COMMON EQUITY = 0.4 TAX LIFE  CAPITAL) ZATION = 0.4 TAX LIFE  CAPITAL) ZATION = 0.4 TAX LIFE  AND CROSSING = 0.4 TAX LIFE  CAPITAL) ZATION = 0.4 TAX LIFE	ıż					
RESENT VALUE OF INCREMENTAL CASH FLOW  N. MINUS ROACOGEN. — (THOUSANDS OF DOLLARS)) = 153127.  ASED ON ANNOTANGLE OUTPUT OF PRODUCT  AS AN UNCHANGING VALUE IN TERMS OF CONSTANT FURCHASING OWER AND GROWS ANNOLLY AT THE GENERAL INFLATION PATE  OF DEBT OF COMMON ENGITY = 2. 4 EFFECTIVE TAX RATE = 4.0. 4 LONGMIC LIFE = 4.0. 4 LAX LIFE  CAPITAL OF FULLY AT THE CONOMIC LIFE = 4.0. 4 LAX LIFE  CAPITAL OF SALES OF AN OF SALES OF A	14	* 5.7		e		:
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10. # PRICHANCE & OTHER TAXES =	4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	410 3	AXES			1

NO. 8 SIC 2631 CORRUGATED PAPER MILL

TIME FRAME = 1990.

STRATEGY : MATCH-E

= NO.16 ADVANCED TECHNOLOGY,GAS TURBINE,INDIRECT FIRED,COAL(AFB) SELECTED TECHNOLOGY

TONS 1 TON)

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NON COGENERATION	143.37 0.0 96.92 0.0 0.0 0.0 265.49	505.78 505.78 300.15 19.26 205.42	19.26 205.42 0.0	9 00 00	0.0
SELECTED TECHNOLOSY	0.0 0.0 0.0 0.0 328.43	328.43 328.43 300.15 20.21 328.43	0.0 0.0 177.34	240.29 143.37 154.13 16.71	-62.95
	FUEL UTILIZATION ( 10**12 BTU) HATURAL GAS PETROLEUM DISTILLATE PETROLEUM RESIDUAL COAL GAS COAL GAS COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL	TOT FUEL CONSUMPTION(10**12 BTU) SITE SOURCE IND BYPRODUCT FUEL (10**12 BTU) TOTAL ELECTRIC CONSUMPTION (10**9 KH) (10**12 BTU) FUEL EHERGY	ELECTRICITY PURCHASED (10**) KKH) (10**)2 BTU) FUEL ENERGY TOT FUEL EVERGY SAVE (10**12 BTU) SITE SCURCE	TOT OIL AND GAS SAVE(10**12 BTU) NATURAL GAS SAVINGS (10**12 BTU) (10**9 CU FT) OIL SAVINGS (10**12 BTU) EQUIV. BBLS	COAL SAVINGS (SOURCE) (10**12 BTU) (10**6 TCHS)

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HOL	COGENERATION
SELECTED	TECHNOLOGY

0.0	1.000	0.0	1.462	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5098.	0.0
0.351	0.0	1.599	0.0	0.0	3.0	48.09	2.0	0.113	0.911	1.000	0.603	0.153	0.0	0.868	0.0	0.0	0.366		0.868	9591.	0.0
FUEL EHERGY UTILIZATION RATIOS FUEL EHERGY SAVINGS RATIO SITE SOURCE	עיתופו	ECS FUEL/U(O)	F/U(0)	SPECIFIED FUEL/U(0)	EHERGY CONVERSION SYSTEM DATA DESIGN OPTION	ECS SIZE (HW)	NO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE WASTE HEAT PATIOA	AVBL HASTE HEAT RATIO,R"HG	WASTE HEAT	MASTE HEAT	AVOL MASTE HEAT RATIO,R'HW	TOTAL R	RECOV WASTE HEAT RATIO,RHG	RECOV MASTE HEAT RATIO,R-700	RECOV, MASTE HEAT RATIO, R-500		TOTAL R	AUXILIARY FOWER REQUIRED(KM)	COP OF HEAT PUMP

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NON-COGENERATION) U = UTILITY FUEL

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CAPITOL COST ACCOUNTING FOR TYPICAL PLANT (\$ 000)

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Name	_	WASTE HAND	1208.		1373.	i
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FEED WATER SYSTEMS   158.   59.   217.   175     Sub-total	٠i .		ö	Ö	ö	•
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PRIMARY CEMERATOR/INVERTER  9.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	<u>.</u>		8578.	2209.	10786.	G
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HEAT RECOVERY EQUIPHENT 9175. 2855. 12030.  CONDENSERS CONDENSERS CONDENSERS 12030.  O			· •	•		•
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HEAT PUTP  SUB-TOTAL  SUB-TOTAL  SUB-TOTAL  SUB-TOTAL  SUB-TOTAL  SUB-TOTAL  O  O  O  O  O  O  O  O  O  O  O  O  O	: -:		71/5.	2855.	12030.	
SUB-TOTAL         21066.         5063.         26129.           SUB-TOTAL         0.         0.         0.         0.           PLEMENTARY HEATTFURNACE, BOILER)         602.         208.         610.         6           F REJECTION         0.         968.	~			: <i>:</i>	; ;	<i>.</i>
PLEMENTARY HEAT(FURNACE, BOILER) 602. 208. 610. 6  T REJECTION CREATION 602. 208. 610. 6  T REJECTION CREATION 692. 0. 692. 121. 201. 201. 201. 201. 201. 201. 20		SUB-TOTAL	21066.	5063.	26129.	ó
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FR BALANCE OF PLANT ITEMS         0.         968.         968.         968.         120.         12	⊋	PPLEMENTARY HEAT(FURNACE,BOILER)	602.	208.	.010.	8948.
SITE PREPARATION  SITE PREPARATION  SITE PREPARATION  STRUCTURES  ELECTRICAL CONDITIONING & CONTROL  SUB-101AL  SUB-101AL  CONTINCENCY  ENSINEERING AND FEES  SUB-101AL  TOTAL CAPITAL COST ESTIMATE  CONSTRUCTION THE(YEARS)  CAPITAL COST EXPENDITURE  SOBOD: 46468, 142636, 19	m	AT REJECTION			ė	ó
SITE PREPARATION  STRUCTURES  ELECTRICAL CONDITIONING & CONTROL  SUB-107AL  SUB-107AL  CONTINCENCY  ENSINEERING AND FEES  SUB-107AL	=	HER BALANCE OF PLANT ITEMS				
STRUCTURES  STRUCTURES  ELECTRICAL COMDITIONING & CONTROL  SUB-101AL  SUB-101AL  T72. 1089. 1861. 1  IRECT COSTS  CONTINCENCY  ENSINEERING AND FEES  SUB-101AL  TOTAL CAPITAL COST ESTIMATE  SOUND: 43005. 132006. 18  CAPITAL COST EXPENDIURE  SUB-101AL  CAPITAL COST EXPENDIURE  SUB-101AL	٠.		ó	968.	968.	139.
SUB-TOTAL	٠.	STRUCTURES	692.	0	692.	1236.
CONTINCENCY  CONTINCENCY ENSINEERING AND FEES SUB-TOTAL  TOTAL CAPITAL COST ESTIMATE CCH:STRUCTION ITHE(YEARS) CCH:STRUCTION ITHE(YEARS) CAPITAL COST EXPENDITURE 96169. 46468. 142636. 1901		SUB-TOTAL	772.	121.	201. 1861.	113.
CONTINCENCY     13165.     6371.     19556.     280       ENSINEERING AND FEES     9839.     4778.     14667.     210       SUB-TOTAL     23074.     11149.     34224.     491       TOTAL CAPITAL COST ESTIMATE     89001.     43005.     132006.     1894       CCHISTRUCTION TIME(YEARS)     0.     3.     3.     3.       CAPITAL COST EXPENDITURE     96169.     46468.     142636.     1901	Z	DIRECT COSTS				
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ATE 89001. 43005. 132006. 1894 0. 3. 3. 96169. 46468. 142636. 1901		ENSINEERING SUB-TOTAL	9889.	4778.	14667.	2105.
ATE 89001. 43005. 132006. 1894 0. 3. 3. 96169. 46468. 142636. 1901		1				
96169. 46468. 142636. 1901		TOTAL CAPITAL COST ESTIMATE CONSTRUCTION TIME(YEARS)	89001.	43005.	132006.	18942.
		CAPITAL COST EXPENDITURE	96169.	46468.	142636.	19018.

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ARRIUAL COSTS	OPERATING COSTS 1990. (K\$/YR) HATURAL GAS PETROLEUN DISTILLATE PETROLEUN DISTILLATE COAL GAS COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL OTHER LIMESTCHE/DOLOHITE	TOTAL FUEL COST  ELECTRICITY STAHO-BY CHARGE  O & H COST	LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED AWINAL COST COST SAVINGS COST SAVINGS RATIO	ENVIRONMENTAL INPACT PLANT ENISSIONS(TON/YR) SULFUR DIOXIDE NIFOGEN OXIDES HYDROCAPECHS PARTICULATES SUBIOITAL	UTILITY EMISSIONS(TON/YR) SULFIR DIOXIDE HITROSEN OXIDES HIDROCAFCY/S PARTICULATES SUSTOTAL	EMISSIONS SAVINGS PATIO SUFUR DIOXIDE NITECZEN OXIDES HIDFCCARBCHS PARTICULATES TOTAL COLID HISTES

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TENTETZON ANIMAL CITAL SAVINGS RALIN - U.341

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NO. 8 SIC 2631 CORRUGATED PAPER MILL

TONS) TON)

TIME FRAME = 1990.

STRATEGY : MATCH-E

SELECTED TECHNOLOGY

\* HO.33 ADVANCED TECHNOLOGY, STIRLING ENGINE, COALLAFB)

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202	COGENERATION
SELECTED	TECHNOLOGY

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FUEL UTILIZATION ( 10**12 BTU)		COAL GAS	COAL DERIVED DISTILLATE	COAL DERIVED RESIDUAL	COAL	OTHER	TOT FUEL CONSUMPTION 10**12 BIU)	SIIE	SCHRICE	IND BIFFODUCT FUEL (10%) BIU)	TOTAL ELECTRIC CONSUMPTION	C124 6 * + OI )	(10**12 BTU) FUEL ENERGY	CISANCES VITCIGICAL	(10.49 (121)	110**12 BTU) FUEL ENERGY	101 FULL FRENCY SAVE (194-12 BIU)	3118	SAMME	TOT CIL AND GAS SAVECTO**12 BTU)	HATHRAL GAS SAVINGS	(10**12 610)	(10**9 CU FT)	OIL SAVINGS	(10.412 1.10)	LGUIV. FBIS	COAL SAVINGS (SMUPCE)	(10**12 810)	(10••€ 1045)

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SELECTED NON
TECHHOLOGY COGENERATION

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0.166 0.166	0.0	0.868	1.186	0.0	9:	23.45	0.4	0.377	0.652	0.0	0.0	0.019	+84. U	0.712	0.0	0.109	( p	264.0	7205.
FUEL ENERGY UTILIZATION RATIOS FUEL ENERGY SAVINGS RATIO SITE SOURCE	U/U(0)	ECS FUEL/AU:0)	F/U(0)	SPECIFIED FUEL/JUID)	EHERGY CONVERSION SYSTEM DATA Design optich	ECS SIZE (MA)	NO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SEUSIBLE MASTE HEAT RATIO-"A	AVEL MASTE HEAT RATIO,R'HG	AVEL MASTE HEAT PATIO, R 700	HASTE HEAT	AVEL 1450E REAL MALLO, K TM	TOTAL R	RECOV WASTE HEAT PATIO,RHG	VILLETE HEAT	COV HASTE HEAT RATIO R-300 COV HASTE HEAT RATIO,RHH	TOTAL R	AUVILLARY POWER REQUIPEDING) AUV THERMAL REQUIDENS 51U) COP OF HEAT PUMP

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NOH-COSENERATION) U = UTILITY FUEL

1'

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1'

CAPITOL CUST ACCOUNTING FOR TYPICAL PLANT (\$ 000)

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NON	COGENERATION
SELECTED	TECHNIOLOGY

0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	33172. 37878. 0. 26468. 0. 0. 5338. 618.	38510. 64963.	42400. 72877. 9660. 1921. 52061. 74798. 22737. 0.	6214.945 4788.539 3119.053 2905.667 96.502 116.227 835.765 501.133 12266.258 8391.562	0.0 4831.945 0.0 2847.802 0.0 569.561 0.0 406.829 0.0 8706.133	12266.258 17097.695	0.151 0.0 0.453 0.0 0.559 0.6 0.154 0.0	0.283 0.0	136769,562 0.0
APRICAL COSTS   OPERATING COSTS 1990, (K\$/YP)  NATURAL GAS  PETROLEUM RESIDUAL  COAL GAS  COAL DERIVED RESIDUAL  COAL  COAL  OTHER  LIHESTONE/DOLOMITE	TOTAL FUEL COST  ELECTRICITY STAND-BY CHAPGE O & M COST	TOTAL OPERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FINED CHARGES LEVELIZED ANHUAL COST COST SAVINGS COST SAVINGS	EHVIPORNENTAL IMPACT PLANT ENISSICHS(TONLYR) SULFUR DIONIDE HITFOGEN OXIDES HYDROCAFEGNS PARTICULATES SUBTOTAL	UTLLTY ENISSIONS(TONZYR) SULFUR DIOXIDF HIPCGEN OXT HYDFOCARECHE PARTICULATIS CLSTOIAL	TOTAL	THISSIONS SAVINGS RATIC SUPERPOSEN OCIDES HIPPOSEN OCIDES HIPPOCREBUS PARTICULATES	10148	SC. 0 BASTED

	S ME LINIUS   S ME LINIUS   S ME LINIUS   S ME LINIUS   S ME LINIUS   S ME LINIUS   S MESS	10.1% NONCOGEN  19018. COGEN  1109724. 770931.  1917. 9618. 0. 0. 0. 6. 42716. 35671. 6880. 6. 18. 6880. 75095. 52169.
		= 10.1%  Nfincogen Cogen  19018. 95648.  1109726. 770931.  104 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.
MINICAGEN   CAGEN	19018.   19018.   19049.   19018.   1	HULLARS    19014.   95648.   19014.   95648.   19014.   95648.   19014.   95648.   19014.   95648.   19014.   95648.   19014.   9618.   19016.
DULLAKS) DULLAKS) DULLAKS) 19018, 95648,  FOR ILLAKS) 1917, 9618,  FOR KATE-1.06	DULLANS)  DULLANS)  DULLANS)  19072.  19072.  19072.  19072.  1917.  9618.  0  0  0  0  0  0  0  0  0  0  0  0  0	DULLAKS    19018.   95648.   19018.   95648.   19018.   95648.   19018.   9618.   19018.   9618.   19018.   9618.
PULLAKS    19016.   95646.	PULLAKS    1901B.   9564B.   1001LAKS    1109726.   770931.   77	10018   95648   10018   95648   10018   100
Pull Laks   1109720,   170931,   170931,   170931,   170931,   170931,   170931,   170931,   1917,   9018,   0.00,	Full and   Full and	IF DULLAKS)  IF DULLAKS)  IF DULLAKS)  ION RATE = 3.64  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 1.05  ION RATE = 0.05  I
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ALTURN = 23.1 x  11.59	### 1110 = 0.305  91.59  63.63  ###############################	45) 411u = 0.305 45) 41.59 63.63
SETURN = 23.1 & 2009  RETURN = 23.1 & 2009  NATIONAL CASH FLOW  NATHONAL TO CONSTANT PURCHASING  NA	SETURN = 23.1 *  RETURN = 23.1 *  NATIONAL CASH FUNG  NATIONAL CASH FUNG  NATIONAL INCLUDENT NATE  NATIONAL INCLUDING LIFE = 50. **  NATIONAL INCLUDING LIFE = 30. **  NATIONAL INCLUDING LIFE = 15. **  NATIONAL INCLUDING LIFE = 15. **  NATIONAL INCLUDING LINE INCLUDING   15. **  NATIONAL INCLUDING LINE   15. **	45) • 91.59 63.63 01.60 62.63
RETURN = 23.1 x  TAL CASH FIDH  AUSARIOS OF FORLARS) = 166308.  PHIRDALT  N TERMS OF CONSTANT PURCHASING  A) THE GENERAL INFLATION HATE  A) THE EFFECTIVE TAX RATE = 50. T  A) THE EFFECTIVE TAX RATE = 50. T  A) THE EFFECTIVE TAX RATE = 15. T  B) THE CASH FINE = 10. T  A) THE EFFECTIVE TAX RATE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE = 10. T  B) THE CASH FINE TAXES T  B) THE CASH FINE TAXES T  B) THE CASH FINE TAXES T  B) THE CA	RETURN = 23.1 x  NAL CASH FLOW  NALEMON OF FORLANDS   16630 B.  PARAMOS OF CONSTANT PURCHASING  ALTHE GENEMAL INFLATION RAIF  1. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE  2. K ECHOUMIC LIFE	
TAL CASH FLOW	AL CASH FIDH	= 4.1 YEARS
		= 23.1 %
PHUBUCT  N TERMS OF CONSTANT PURCHASING  A! THE GENEMAL INFLATION RATE  3. C EFFECTIVE TAX RATE  1. C ELCHDIMIC LIFE  6. C LAX LIFE  80. C LINUESTMENT LAX CREDIT  10. C LINUESTMENT LAX CREDIT  10. C LINUESTMENT LAXES  10. C LINUESTMENT LAXES  10. C LINUESTMENT LAXES  10. C LINUERMENTAL CAPITAL TNV. = 0. C	PHUBUCT  N TERMS DE CONSTANT PURCHASING  A) TE GENEMAL INFLATION RATE  3. T EFFECTIVE TAX RATE  1. T ECCHOUNT CLIFE  20. T LAX LIFE  30. T INVESTMENT LAX CREDIT  10. T  10. T  11. T  12. T  13. T  14. T  15. YRS  16. T  16. T  17. T  18. T	
AT THE CENERAL INFLATION HATE  3. C EFFECTIVE LIFE = 50. C  1. C ELECTIVE LIFE = 30. YES  0. C LAX LIFE = 15. YES  30. C INVESTMENT LAX CREDIT = 10. C  10. C INSURANCE LOTHER LAXES = 3. C  30. C I	AT THE CONSTANT PURCHASING  AT THE CONSTANT HATE  AT THE CONTRACT TAX RATE  AT THE STANTANT THE STANTANT SOLVE  BY A SOLVE THE STANTANT SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLVE THE SOLVE  BY A SOLV	Administration of the control of the
3. f EFFECTIVE TAX RATE = 50. % 1. x elinimis Life = 30. YKS 0. c lax life = 15. YKS 30. c lavestment lax cribit = 10. % 10. f insurance & other laxes = 3. % 3. x incremental capital Inv. = 0. %	3. f EFFECTIVE TAX RATE = 50. % 1. x elinimis Life = 30. YKS 0. c lax life = 15. YKS 30. c livestment lax (RFD) = 10. % 10. f liverance L other laxes = 3. % 3. x incremental capital thus = 0. %	N TERMS OF CONSTANT AT THE GENERAL INFLA
SOL & INVESTMENT LAX CAPITAL TAXES = 3. %  10. 4 INCREMENTAL CAPITAL INV. = 0. %	O. A INCREMENTAL CAPITAL INV. = 0. %	3. f EFFECTIVE TAX RATE = 50. % 1. f ECHDIMIC LIFE = 30. Y 0. f 14x LIFE = 15. Y
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	-13:	

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NO. 8 SIC 2631 CORRUGATED PAPER HILL

TIME FRAME = 1990.

STRATEGY : MATCH-E

= NO.34 ADVANCED TECHNOLOGY, THERMIONICS, COAL DERIVED BOILER GRADE SELECTED TECHNOLOGY

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NON	COSENERATION
SELECTED	TECHNOLOGY

143.37 0.0 96.92 0.0 0.0 265.49	505.78 505.78 300.15	19.26 205.42	19.26	0.0	0.0	0.0	0.0	0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0	382.68 546.85 300.15	19.12	0.0	123.10 -41.07	240.29	143.37	96.92 16.71	-201.36 -13.05
FUEL UTILIZATION ( 10**12 BTU) HATURAL GAS FETROLEUM DISTILLATE PETROLEUM RESIDUAL COAL GAS COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL	10T FUEL COMBUNIPTION(10**12 BTU) SITE SOURCE IND BIPROBUCT FUEL (10**12 BTU)	TOTAL ELECTRIC CONSUMPTION (10**9 KEH) (10**12 BTU) FUEL ENERGY	ELECTRICITY FURCHASED (10**9 KW1) (10**1 KW1)	TOT FUEL EREPGY SAVE (10**12 BTU) SITE SOUTCE	TOT DIL AND GAS SAVE(10**12 BTU)	HATURAL GAS SAVINGS (16**12 ETU) (16**9 CU FT)	011 SAVINGS (10**12 E1U) EQUIV. EBLS	(04) SAVINGS (SOURCE) (10**12 BTU) (10**6 TGHS)

SELECTED HON
TECHNOLOGY COGENERATION

																									F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL)
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.0	1.000	0.0	1.462	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	5098.	22.	0.0	U(0) = UTILITY FUEL (HOH-COGEHERATIOH)
1	0.243	0.0	1.825	0.038	0.0	1.0	45.49	2.0	0.174	756.0	0.414	0.621	0.157	0.117	0.0	0.895	0.0	0.0	0.615	0.0	0.895	4410.	7.	0.0	LITY FUEL (N
i	FUEL ENERGY UTILIZATION RATIOS FUEL ENERGY SAVINGS RATIO SITE SOURCE	U/U(0)	ECS FUEL/UIO)	F/U(0)	SFECIFIED FUEL/U(0)	EHFPGY CONVERSION SYSTEM DATA DESIGH OPTION	ECS SIZE (191)	HO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE WASTE HEAT RATIOA	AVEL HASTE HEAT RATIO,R'HG	AND RESTERENT RATIO,R'-700	HESTE HEAT	HASTE HEAT	AVEL MASTE BEAT RATIO,R'BW	101AL		RECOV MASTE HEAT PATIO, R-700	PEDOV, WASTE HEAT RATIO, R-500	PECON HASTE HEAT RATIO,RHH	TOTAL R	AURILIARY FOWER PEQUIPEDINAL	AUG THEFURE REQUID-#6 BTU)	COP OF HEAT PUMP	U = UTILITY FUEL

PLANT	
TYPICAL	
FOR	
<b>ACCOUNTING</b>	( \$ 000 )
COST	
CAPITOL	

E AND PETRIEVAL 1781. 26 107646E AND RETRIEVAL 23. 1804. 27 110746E AND RETRIEVAL 23. 23. 27 1804. 27 1804. 27 1805. 27 1805. 27 1805. 20		COST CATEGORY	#*** SELE	**** SELECTED TECHNOLOGY QUIPHENT INSTALLATION	<b>#</b> P	NON-COGEN TOTAL
1.1 FUEL CTORAGE AND PETRIEVAL 1.2 LINESTORIE STORAGE AND RETRIEVAL 1.3 HASTE HANDLING SYSTEMS 2.1 MEAT SCURCE 2.1 MEAT SCURCE 2.2 SPECIAL EMISSIONS CONTROLS 2.3 FEED MAIRE SYSTEMS 2.4 GASTETRRIEGS) 2.5 GASTETRRIEGS) 2.6 GASTETRRIEGS) 3.7 FRIMARY CHIRRARCRATHVERIER 3.5 SECCIOLARY EMERGY CONVERTER 3.5 SECCIOLARY EMERGY CONVERTER 3.5 SECCIOLARY EMERGY CONVERTER 3.6 SECCIOLARY EMERGY CONVERTER 3.7 SECCIOLARY EMERGY CONVERTER 3.8 SECCIOLARY EMERGY CONVERTER 3.9 SECCIOLARY EMERGY EQUIPMENT 3.1 PRIMARY EMIRGY CONVERTER 3.2 SECCIOLARY EMERGY EQUIPMENT 3.3 SECCIOLARY EMERGY EQUIPMENT 3.4 SECCIOLARY EMERGY EQUIPMENT 3.6 SECCIOLARY EMERGY EQUIPMENT 3.7 CCAGE MISSES 3.8 MEAT PULP 3.9 MEAT PULP 3.9 SECCIOLARY MEATIFURING & CONTROL 3.9 SECCIOLAR 3	ä	FUEL/HASTE HAMBLING AND STORAGE	9 1 1 5 1 5 5 9 9	1 5 8 8 8 8 8 7 1 1	1 4 5 1 1 1 1	! ! ! ! ! !
1.3 HASTE HAHOLING SYSTEMS  508-TOTAL  ECS HEAT SCURCE  2.1 WEAT SCURCE  2.2 SPECIAL EMISSIONS CONTROLS  2.2 SPECIAL EMISSIONS CONTROLS  2.4 SEED HATER SYSTEMS  2.5 SPECIAL EMISSIONS CONTROLS  2.6 GASTERREGS)  3.1 PRIMARY GENERATORY THREE  3.2 SECONDARY ENERGY CONVERTER  3.3 SECONDARY ENERGY CONVERTER  3.4 SECONDARY ENERGY CONVERTER  3.5 SECONDARY ENERGY CONVERTER  3.6 SECONDARY ENERGY CONVERTER  3.7 CONDESSERS  3.8 HEAT PRUP  3.9 HEAT PRUP  3.9 HEAT PRUP  3.1 STEE PREPARATICH  3.1 STEE PREPARATICH  3.2 STRUCTURES  4.1 STEE PREPARATICH  5.2 STRUCTURES  7.1 SITE PREPARATICH  5.2 STRUCTURES  7.1 SITE PREPARATICH  5.2 STRUCTURES  7.2 STRUCTURES  7.3 STRUCTURES  7.4 STRUCTURES  7.5 STRUCTURES  7.6 STRUCTURES  7.7 STRUCTURES  7.8 STRUCTURES  7.9 STRUCTURES  7.1 STRUCTURES  7.2 STRUCTURES  7.3 STRUCTURES  7.4 STRUCTURES  7.5 STRUCTURES  7.6 STRUCTURES  7.7 STRUCTURES  7.8 STRUCTURES  7.9 STRUCTURES  7.9 STRUCTURES  7.1 STRUCTURES  7.1 STRUCTURES  7.2 STRUCTURES  7.3 STRUCTURES  7.4 TOTAL CAPITAL COST ESTIMATE  7.5 SUBJECTICH THIS THIS TOTAL  7.7 TOTAL CAPITAL COST ESTIMATE  7.7 TOTAL CAPITAL COST ESTIMATE  7.7 TOTAL CAPITAL COST ESTIMATE  7.7 TOTAL  7.7			1781.	267.	2048.	1842.
ECS HEAT SOURCE  2.1 HEAT SCURCE  2.2 SPECIAL EHISSIONS CONTROLS  2.2 SPECIAL EHISSIONS CONTROLS  2.3 STEED WAITER SYSTEMS  2.4 GASSIFIERICES)  2.5 GASTIFIERICES)  2.6 GASTIFIERICES)  3.1 PRIMARY EHERGY CONVERTER  3.2 STECONDARY EHERGY CONVERTER  3.3 SECONDARY EHERGY CONVERTER  3.4 SECONDARY EHERGY CONVERTER  3.5 SECONDARY EHERGY CONVERTER  3.6 SECONDARY EHERGY CONVERTER  3.7 CONDERSES  3.8 HEAT PROVER EQUIPHENT  3.9 HEAT PROVENT EQUIPHENT  3.9 HEAT PROVENT EQUIPHENT  3.0 HEAT PROVENT EQUIPHENT  3.1 HEFINAL STORAGE  3.2 HEAT PUTP  5.2 STECONDARY HEATIFURING & CONTROL  5.3 HEAT PUTP  5.4 SUB-TOTAL  5.5 STECONDARY  5.6 STECONDARY  6.7 STECONDARY  6.8 SUB-TOTAL  10.0 FEES  6.1 CONTINGENCY  6.2 STECONDARY  7.2 STECONDARY  8.3 SUB-TOTAL  10.0 FEES  8.4 CONTINGENCY  8.5 SUB-TOTAL  10.1 CONTINGENCY  10.2 STECONDARY  10.3 SUB-TOTAL  10.4 CAPITAL COST ESTIMATE  6.7 SUB-TOTAL  10.4 CAPITAL COST EXPENDITURE  9.5 SUB-TOTAL  10.4 CAPITAL COST EXPENDITURE  9.5 SUB-TOTAL  10		_	23.	'n	27.	
ECS HEAT SCURCE  2.1 HEAT SCURCE  2.2 SPECIAL ENISSIONS CONTROLS  2.4 SECIAL ENISSIONS CONTROLS  2.5 SPECIAL ENISSIONS CONTROLS  2.6 GASTETERIES  3.6 STATERIES  3.1 PRIMARY ENERGY CONVERTER  3.2 FRIMARY CHERATOR/INVERTER  3.3 FRIMARY CHERATOR/INVERTER  3.4 SECCHOLARY ENERGY CONVERTER  3.5 EDITCHING CYCLE VAPOR GENERATOR  3.6 ECCHOLARY CHERATOR/INVERTER  3.7 GASTELL STORAGE  3.8 HEAT RECOVERY EQUIPHENT  3.9 HEAT PROVERY EQUIPHENT  3.1 FOR HEAT RECOVERY EQUIPHENT  3.2 HEAT PROVERY EQUIPHENT  3.3 HEAT PROVERY EQUIPHENT  3.4 HEAT PRECOVERY EQUIPHENT  3.5 SUB-101AL  THEFHAL STORAGE  5.0 SUB-101AL  THEFHAL STORAGE  5.1 SITE PREPARATION  5.2 STRUCTURES  7.1 SITE PREPARATION  7.2 STRUCTURES  7.3 SUB-101AL  THOMER BALANCE OF PLANT ITEMS  6.1 CONTINGENCY  8622  7.3 SUB-101AL  THOMER COST ESTIMATE  6.1 CONTINGENCY  6.2 ENGINEEPING AND FEES  5.2695  6.2 ENGINEEPING AND FEES  5.2695  6.2 ENGINEEPING AND FEES  5.2695  6.2 ENGINEEPING AND FEES  5.2695  6.2 ENGINEEPING AND FEES  5.2695  6.2 ENGINEEPING AND FEES  5.2695  6.2 ENGINEEPING AND FEES  6.3 CONTROLL CAPITAL  TOTAL CAPITAL COST EXPENDITURE  6.3 TALLET COST EXPENDITURE  7.1 THE CAPITAL COST EXPENDITURE  7.2 THE COST EXPENDITURE  7.2 THE COST EXPENDITURE  7.2 THE COST EX		308-101AL	1004	671.	5072·	1842.
2.1 NEAT SCURCE 2.2 SPECIAL ENISSIONS CONTROLS 2.2 SPECIAL ENISSIONS CONTROLS 2.3 FEED WATER SYSTEMS 2.4 GASIFIEREES) 2.4 GASIFIEREES) 2.5 GASIFIEREES) 2.6 GASIFIEREES) 3.7 SUB-TOTAL 3.1 PRIMARY ENERGY CONVERTER 3.2 SECTIONARY ENERGY CONVERTER 3.3 SECTIONARY ENERGY CONVERTER 3.4 SECTIONARY ENERGY CONVERTER 3.5 SECTIONARY ENERGY CONVERTER 3.6 SECTIONARY ENERGY CONVERTER 3.7 SECTIONARY ENERGY CONVERTER 3.8 HEAT PROTOR SCIE VAPOR GENERATOR 3.9 HEAT RECOVERY EQUIPHENT 3.1 HEFMAL STORAGE 3.2 SUB-TOTAL 3.3 HEAT PUTP 3.4 HEAT PUTP 3.5 SUB-TOTAL 4.6 SUB-TOTAL 4.6 SUB-TOTAL 4.6 SUB-TOTAL 4.7 STER PREPARATION 5.2 STRUCTURES 5.3 SUB-TOTAL 5.4 SUB-TOTAL 5.5 SUB-TOTAL 6.7 STRUCTURES 5.6 SUB-TOTAL 6.7 CONTRIGENCY 6.7 SUB-TOTAL 6.8 SUB-TOTAL 6.9 SUB-TOTAL 6.1 CONTRIGENCY 6.2 ENSINGEPINS AND FEES 6.1 CONTRIGENCY 6.2 ENSINGEPINS AND FEES 6.2 ENSINGEPINS AND FEES 6.3 CONTRIGENCY 6.4 SUB-TOTAL 6.6 SUB-TOTAL 6.7 SUB-TOTAL 6.7 SUB-TOTAL 6.7 SUB-TOTAL 7.7 SUB-TOTAL 7.7 SUB-TOTAL 7.8 SUB-TOTAL 7.9 SUB-TOTAL 7.9 SUB-TOTAL 7.9 SUB-TOTAL 7.9 SUB-TOTAL 7.9 SUB-TOTAL 7.9 SUB-TOTAL 7.9 SUB-TOTAL 7.1 SUB-TOTAL 7.1 SUB-TOTAL 7.1 SUB-TOTAL 7.2 SUB-TOTAL 7.3 SUB-TOTAL 7.4 SUB-TOTAL 7.5 SUB-TOTAL 7.5 SUB-TOTAL 7.6 SUB-TOTAL 7.7 SUB-TOTAL 7.7 SUB-TOTAL 7.8 SUB-TOTAL 7.9 SUB-TO	;					
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ENERGY CONVERSION SYSTEMICES)  3.1 PRIMARY EMERGY CONVERTER  3.2 SECCHOLARY EMERGY CONVERTER  3.3 SECCHOLARY EMERGY CONVERTER  3.4 SECCHOLARY EMERGY CONVERTER  3.5 SECCHOLARY EMERGY CONVERTER  3.6 SECCHOLARY EQUIPMENT  3.7 CCAOEMISERS  3.8 HEAT RECOVERY EQUIPMENT  3.7 CCAOEMISERS  3.8 HEAT PUMP  3.9 HEAT PUMP  3.9 HEAT PUMP  3.9 HEAT PUMP  3.9 HEAT PUMP  3.9 HEAT PUMP  3.9 HEAT PUMP  3.9 HEAT REJECTION  0.0  0.1 SUPPLEMENTARY HEATIFURNACE, BOILER)  2.0 OTHER BALANCE OF PLANT ITEMS  7.1 SITE PREPARATION  7.2 STRUCTURES  7.3 ELECTPICAL CONDITIONING & CONTROL  861.  11.DIRECT COSTS  6.1 CONTINGENCY  8.2 ENGINEEPING AND FEES  8.2 ENGINEEPING AND FEES  8.2 ENGINEEPING AND FEES  8.2 ENGINEEPING AND FEES  8.2 ENGINEEPING AND FEES  8.2 ENGINEEPING AND FEES  CCHOINGLICH THACTYBARS)  101AL CAPITAL COST EXTINATE  101AL CAPITAL COST EXPENDITURE  17.1 TOTAL CAPIT			20361.	7703.	28564.	1753.
3.1 PRIMARY EMERGY CONVERTER  3.2 FECHDARY EMERGY CONVERTER  3.3 SECCHDARY EMERGY CONVERTER  3.4 SECCHDARY EMERATOR  3.6 SECHDARY EMERATOR  3.6 SECHDARY EMERATOR  3.6 SECHDARY EQUIPMENT  3.6 MEAT PUMP  3.8 MEAT PUMP  3.9 MEAT PUMP  3.9 MEAT PUMP  3.9 MEAT PUMP  3.1 STREPEPARATICH  5.1 SITE PEPARATICH  5.2 STRUCTURES  7.1 SITE PEPARATICH  7.2 STRUCTURES  7.3 STRUCTURES  7.4 STRUCTURES  7.5 STRUCTURES  7.6 SUB-TOTAL  10.0 SUB-TO	ĕ.	ENERGY CONVERSION SYSTEM(ECS)				
3.2 FRIMARY GENERATOR/INVERTER  3.4 SECCIODARY ENERGY CONVERTER  3.5 SECCIODARY ENERGY CONVERTER  3.6 HEAT RECOVERY EQUIPHENT  3.6 HEAT RECOVERY EQUIPHENT  3.7 CC.ODENSERS  3.8 HEAT PUMP  3.9 SUB-TOTAL  THEFMAL STORAGE  5.0 SUPPLEMENTARY HEATTFURNACE, BOILER)  5.1 STEE FPEPARATICH  7.1 SITE FPEPARATICH  7.2 STRUCTURES  7.3 ELECTPICAL CONDITIONING & COMPROL  861.  11.5 STRUCTURES  7.3 ELECTPICAL CONDITIONING & COMPROL  861.  11.5 STRUCTURES  7.5 STRUCTURES  7.6 STRUCTURES  7.7 STRUCTURES  8.7 STRUCTURES  8.8 STRUCTURES  8.9 SUB-TOTAL  11.5 STRUCTURES  8.1 CONTINGENCY  8.2 ENGINEEPING AND FEES  8.2 ENGINEEPING AND FEES  8.2 ENGINEEPING AND FEES  8.3 ENGINEEPING AND FEES  8.4 CONSTRUCTION  10 TALL CAPITAL COST ESTIMATE  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CONSTRUCTION THEORY SAND  CAPITAL COST EXPENDITURE  93671.		PRIMARY	33972.	1901.	35872.	•
3.5 SECONDARY ENERGY CONVERTER 3.4 SECONDARY ENERGY CONVERTER 3.5 EUTCOURDY GENERATOR 3.6 HEAT RECOVERY EQUIPMENT 3.6 HEAT RECOVERY EQUIPMENT 3.7 CCNDENSERS 3.8 HEAT PUMP 3.9 HEAT PUMP 3.9 HEAT PUMP 3.9 HEAT PUMP 5.9 SUB-TOTAL  OTHER BALANCE OF PLANT ITEMS 7.1 SITE PREPARATION 7.1 SITE PREPARATION 7.2 STRUCTURES 7.3 ELECTPICAL CONDITIONING & CONTROL 861. 11.0 IRECT COSTS 6.1 CONTINGENCY 8.2 ENGINEEPTER AND FEES 8.2 ENGINEEPTER AND FEES 8.2 ENGINEEPTER AND FEES 8.3 ENGINEEPTER AND FEES 8.4 CONTINGENCY 8.5 ENGINEEPTER AND FEES 8.5 ENGINEEPTER AND FEES 8.6 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 ENGINEEPTER AND FEES 8.7 TOTAL CAPITAL COST EXTINATE 8.7 ENGINEEPTER AND FEES 9.7 ENGINEEPTER AND FEES 9.7 ENGI		FRIMARY	4650.	396.	5045.	0
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3.6 HEAT RECOVERY EQUIPMENT  3.7 CC.OBENSERS  3.8 HEAT PUMP  3.9 SUB-TOTAL  THEFMAL STORAGE  5.9 SUPPLEMENTARY HEATTFURNACE, BOILER)  5.9 OTHER BALANCE OF PLANT ITEMS  7.1 SITE PREPARATION  7.2 STRUCTURES  7.3 ELECTPICAL CONDITIONING & COMPROL  861.  11.5 SUB-TOTAL  11.5 SUB-TOTAL  12.6 SUB-TOTAL  12.6 SUB-TOTAL  12.6 SUB-TOTAL  12.6 SUB-TOTAL  12.6 SUB-TOTAL  13.6 CONSTRUCTURE  6.1 CONTINGENCY  8.2 ENSINGEPTIFS AND FEES  8.3 ENSINGEPTIFS AND FEES  8.4 CONSTRUCTION THEORY STIMATE  10 TALL CAPITAL COST EXTENDINGE  17 CAPITAL COST EXPENDITURE  17 CAPITAL COST EXPENDITURE  17 CAPITAL COST EXPENDITURE  18 CONSTRUCTION THEORY STIMATE  18 CONSTRUCTION THEORY STIMATE  18 CONSTRUCTION THEORY STIMATE  19 CONSTRUCTION THEORY STIMATE  10 CAPITAL COST EXPENDITURE						<i>.</i>
3.7 CC.OERISERS 3.9 HEAT PULIP 5.8 HEAT PULIP 5.8 HEAT PULIP 5.8 - 101AL 5.9 - 101AL 6.2 ENSINGEPINS AND FEES 5.0 COAPITAL COST ESTIMATE 5.1 TOTAL CAPITAL COST ESTIMATE 5.2 CAPITAL COST EXPENSIONE 6.2 ENSINGEPINS THE COST EXPENSIONE 6.3 CAPITAL COST EXPENSIONE 6.4 COAPITAL COST EXPENSIONE 6.5 CAPITAL COST EXPENSIONE 6.6 CONTRUCTION THEORY 6.7 CAPITAL COST EXPENSIONE 6.7 CAPITAL COST EXPENSIONE 6.8 CONTRUCTION THEORY 6.9 CAPITAL COST EXPENSIONE 6.1 CAPITAL COST EXPENSIONE 6.1 CAPITAL COST EXPENSIONE 6.2 CAPITAL COST EXPENSIONE 6.3 CAPITAL COST EXPENSIONE 6.4 CAPITAL COST EXPENSIONE 6.5 CAPITAL COST EXPENSIONE 6.7 CAPITAL COST EXPENSIONE 6.			Ö	်င်		
3.3 HEAT PUMP       0.         5.08-TOTAL       35621.         THEFHAL STORAGE       0.         SUPPLEMENTARY HEATTFURNACE, BOILER)       2694.         HEAT REJECTION       0.         0.1 SITE PREPARATION       0.         7.1 SITE PREPARATION       0.         7.2 STRUCTURES       39.         7.3 ELECTPICAL CONDITIONING & COMPROL       39.         5.03-TOTAL       39.         BAJ       10.         INDIRECT COSTS       12963.         BAJ       22693.         CONTINGENCY       22695.         BAJ       22695.         TOTAL CAPITAL COST ESTIMATE       0.         CONSTRUCTION THEOREMS)       0.         CONSTRUCTION THEOREMS)       0.         CAPITAL COST EXPENDITURE       93671.       17			ö	0,	6	٥
SUPPLEMENTARY HEATTFURNACE, BOILER)  SUPPLEMENTARY HEATTFURNACE, BOILER)  D.  OTHER BALANCE OF PLANT ITEMS  7.1 SITE PREPARATION  7.2 STRUCTURES  7.3 ELECTPICAL CONDITIONING & CONTROL  SUB-TOTAL  INDIRECT COSTS  B.1 CONTINGENCY  B.2 ENGINEEPING AND FEES  SUS-TOTAL  TOTAL CAPITAL COST ESTIMATE  CCNSTRUCTICN TIME(YEARS)  CCAPITAL COST EXPENDITURE  1707A  1707			35621.	0. 2297.	0. 40918.	<i>.</i>
SUPPLEMENTARY HEATTFURNACE, BOILER)  HEAT REJECTION  OTHER BALANCE OF PLANT ITEMS  7.1 SITE PPEPARATICH: 7.2 STRUCTURES  7.3 ELECTPICAL CONDITIONING & CONTROL 861.  INDIRECT COSTS  8.1 CONTINGENCY 8.2 ENGINEEPING AND FEES 8.2 ENGINEEPING AND FEES 8.2 ENGINEEPING AND FEES CONSTRUCTION THACTYBARS) 0. CAPITAL COST EXPENDITURE 7056 726 726 726 727 737 747 757 757 757 757 757 757 757 757 75	:	THEFHAL STORAGE		ö	ö	0.
HEAT REJECTION  OTHER BALANCE OF PLANT ITEMS  7.1 SITE PREPARATION  7.2 STRUCTURES  7.3 ELECTPICAL CONDITIONING & CONTROL  803-TOTAL  INDIRECT COSTS  8.1 CONTINGENCY  8.2 ENSINGEPINS AND FEES  9.2 ENSINGEPINS AND FEES  CCNSTRUCTION TIME(YEARS)  0. CAPITAL COST EXTHATE  CCNSTRUCTION TIME(YEARS)  CAPITAL COST EXPENDITURE  170 CAPITAL COST EXPENDITURE  170 CAPITAL COST EXPENDITURE  170 CAPITAL COST EXPENDITURE  170 CAPITAL COST EXPENDITURE  170 CAPITAL COST EXPENDITURE		SUPPLEMENTARY HEAT (FURNACE, BOILER)	2694.	825.	3519.	8948.
HEAT REJECTION  OTHER BALANCE OF PLANT ITEMS  7.1 SITE PREPARATION  7.2 STRUCTURES  7.3 ELECTPICAL CONDITIONING & CONTROL  801.  INDIRECT COSTS  8.1 CONTINGENCY  8.2 ENGINEEPING AND FEES  8.2 ENGINEEPING AND FEES  8.3 ENGINEEPING AND FEES  CONTINGENCY  1074L CAPITAL COST ESTIMATE  1074L CAPITAL COST EXPENDITURE  1074C CAPITAL COST EXPENDITURE  1075C CONTRUCTION THACTYBARS  1075C CAPITAL COST EXPENDITURE  1075C CAPITAL COST EXPENDITURE  1075C CAPITAL COST EXPENDITURE  1075C CAPITAL COST EXPENDITURE  1075C CAPITAL COST EXPENDITURE						
01HER BALANCE OF PLANT ITEMS  7.1 SITE PREPARATION: 7.2 STRUCTURES 7.3 ELECTPICAL CONDITIONING & CONTROL 39. 509-TOTAL 11.01PECT COSTS  8.1 CONTINGENCY 8.2 ENSINGEPING AND FEES 5.26.95. 7.0 ENSINGEPING AND FEES 6.2 ENSINGEPING AND FEES 6.2 ENSINGEPING AND FEES 6.2 ENSINGEPING AND FEES 6.2 ENSINGEPING AND FEES 6.2 ENSINGEPING AND FEES 6.2 ENSINGEPING AND FEES 6.3 ENSINGEPING AND FEES 7.056. 9.26.95. 7.056. 9.26.95. 7.056. 9.26.95. 7.056. 9.26.95. 9.26.95. 7.056. 9.26.95. 7.056. 9.26.95		HEAT REJECTION	•	ò	ö	9
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12969.   12969.   12969.   9726.   9	ė.	It.3IPECT COSTS				
ATE 87536. 1 0. 93671. 1			12969. 9726.	2363.	15351. 11513.	2806.
ATE 87536. 0. 93671.				•		
93671.		TOTAL CAPITAL COST ESTIMATE CONSTRUCTION TIME(YEARS)	87536.	16934.	103620. 3.	18942.
		CAPITAL COST EXPENDITURE	93671.	17211.	110892.	19018.

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APR:UAL COSTS OPERATING COSTS 1990. (K\$/YR) NATURAL GAS PETROLEUR DISTILLATE PETROLEUR RESIDUAL COAL DEPIYED DISTILLATE COAL DERIYED RESIDUAL COAL OTHER	TOTAL FUEL COST ELECTRICITY STAND-BY CHARGE O & M COST	TOTAL OPERATING COSTS	LEVELIZED OPEPATING COSTS LEVELIZED FIXED CHARGES LEVELIZED ANNUAL COST COST SAVINGS COST SAVINGS RATIO	ENTERNIEM LITERIAL LITERIA PLANT ENTESTONS(TOW/YR) SULFUR DIOXIDE HITPOGEN OXIDES HIDFCCAREGUS PARTICULATES SUBTOTAL	UTILITY EMISSIONS(TON/YR) SULFUR DIONIDE HITROSEN ONIDES HIDFOCAPENIS PAPTICULATES SUBTOTAL	EFISSICHS SAVINGS RATIO SULFUR DIONIDE HITFOSEN ONIDES HILFOCAFORS PARTICULATES TOTAL

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1351 (1400)SANDS OF DOLLARS) 1010  1010  102	AFITAL COST (THOUSANDS OF DOLLARS)		111473.		
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S :: ESCALATION RAIR = 3.64 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	EDUVALIZED LUSIS (IMBUSANDS OF DULLAKS) FIXED FUPITUM	1912.	11210.		
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COSE THE HUMSTRY' WOUNDED MAKEN STRATEGY-UPTIMUS DANK SHIP-INDUSTRIAL OF SEA NOVAULTE TELEMODESSY, FREMIUNICS, COME, DEMINED BOILER GRADE

HO.10 SIC 2812 CHLORINE/CAUSTIC PRODUCTION

TONS) TON)

TIME FRAME = 1990.

STRATEGY : MATCH-E

SELECTED TECHNOLOGY

= NO.10 ADVANCED TECHNOLOGY, DIESEL, LOW SPEED, COAL DERIVED BOILER GRD

-369-

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NO.	COGENERATION
SELECTED	TECHNOLOGY

	46.39	0.0	20.93	0.0	0.0	0.0	601.53	0.0		668.86	668.86	12.18		46.80	499.13	46.80	499.13		0,0	0.0	0.0	,	0.0	0.0		0.0	0.0		6	•	0.0
	0.0	0.0	0.0	0.0	0.0	473.11	0.0	0.0		473.11	676.08	48.72		46.90	421.17	0	0.0		195.75	-7.22	67.33		46.39	49.81		20.93	3.61		75 92-	7	-3.46
CHEL HITTITATION ( 104412 BYILL	HATURAL GAS	PETROLEUII DISTILLATE	PETROLEUM RESIDUAL	COAL GAS	COAL DERIVED DISTILLATE	COAL DERIVED RESIDUAL	C011	ОТНЕЯ	TOT FUEL CONSUMPTION(10**12 6TU)	SITE	SOURCE	IND BYPRODUCT FUEL (10**12 BTU)	MOTTOM SHOT DIGITAL ATOT	(10*** KEE)	(10++12 BTU) FUEL ENERGY	CICCALCIA CALCIA	(10**12 BTU) FUEL ENERGY	IOT FUEL ENERGY SAVE (10**12 BIU)	2116	Sonsci	TOT OIL AND GAS SAVE(10**12 BTU)	NATURAL GAS SAVINGS	(10*-12 BTU)	(10**3 CU FT)	OIL SAVINGS	(10**12 BTU)	EGUTV. PBLS	COAL SAVINGS (SOURCE)	A 10 4 10 10 10 10 10 10 10 10 10 10 10 10 10	(0)0 71:011	(10**01)

SELECTED NON TECHNOLOGY COGENERATION

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F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NON-COSEMERATION) U = UTILITY FUEL

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PLANT	
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COST	
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The cost category   Cost cat	COST CATEGORY  1.1 FULL STATE INABILING AND STORAGE 1.2 LINESTONE ENABLE REPREVAL 1.2 LINESTONE STORAGE AND REPREVAL 1.3 LINESTONE STORAGE AND REPREVAL 1.4 LINESTONE STORAGE AND REPREVAL 1.5 LINESTONE STORAGE AND REPREVAL 1.5 LINESTONE STORAGE AND REPREVAL 1.6 LINESTONE STORAGE AND REPREVAL 1.7 LINESTONE STORAGE AND REPREVAL 1.8 MASTE 440LING SISTERIS 1.9 MASTE 440LING SISTERIS 1.1 MASTE 440LING SISTERIS 1.2 LINESTONE STORAGE 1.3 MASTE 440LING SISTERIS 1.4 LINESTONE STORAGE 1.5 LINESTONE STORAGE 1.6 LINESTONE STORAGE 1.7 LINESTONE STORAGE 1.8 LINESTONE STORAGE 1.9 MASTE 440LING SISTERIS 1.9 FIFTHER REPORT COVERTING 1.1 PETHER REPORT COVERTING 1.2 STORAGE 1.3 STORAGE 1.4 SACRIFICATION 1.5 STORAGE 1.5 STORAGE 1.6 CONTRACTOR STORAGE 1.7 STORAGE 1.8 STORAGE 1.9 STORAGE 1.9 STORAGE 1.9 STORAGE 1.1 PETHER REPORT COVERTING 1.1 STORAGE 1.1 PETHER STORAGE STORAGE STORAGE 1.2 STORAGE 1.3 STORAGE 1.4 STORAGE 1.5 STORAGE 1.5 STORAGE 1.6 STORAGE 1.7 STORAGE 1.7 STORAGE 1.8 STORAGE 1.9 STORAGE 1.9 STORAGE 1.1 STORAGE 1.1 STORAGE 1.1 STORAGE 1.1 STORAGE 1.2 STORAGE 1.3 STORAGE 1.4 STORAGE 1.5 STORAGE 1.5 STORAGE 1.5 STORAGE 1.6 STORAGE 1.7 STORAGE 1.7 STORAGE 1.7 STORAGE 1.7 STORAGE 1.8 STORAGE 1.8 STORAGE 1.9 STORAGE 1.9 STORAGE 1.1 STO						
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1.2 LINESTONE STORAGE AND RETREVAL 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	1.2 LIESTONE STORAGE AND RETRIEVAL 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.			767.	100.	.499	353.
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SELECTED	TECHNOLOGY

ANNUAL COSTS

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ANNUALIZED COSTS (THOUSANDS OF UNLLARS)		
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IRICITY :ESCALATION MATER 1.04 292		
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TUTAL SYSTEM 39301	36636.	
MIAL COST SAVINGS RATIO = 0.066		
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UNDISCHUNIED PAYSACK PERION = 9.8 YEARS		
LISCOUNTED CASH FLOW RATE OF RETURN = 8.1 - 2		
NET PRESENT VALUE OF INCHENIAL CASH FLOW (COGEN. MINDS NOWCOGEN. TITHOUSANDS OF DOLLARS)) =	18499,	
+ BASED UN ANNUAL DUTPUT OF PRODUCT		
- Z = .	JRCHAS ING ION RATE	
CUST OF DEAT = 3. C EFFECTIVE TAX RA	RATE # 50. #	St. 24
OF PREFERRED BUILTY = 0.4 TAX LIFE  CAPITALIZATION = 30. x INVESTMENT F  UN STOCK CAPITALIZ. = 70.4 INSURANCE E	AX CHEDIT = 10.4 INTHE TAXES = 3.4	
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MO.10 SIC 2812 CHLORINE/CAUSTIC PRODUCTION

TONS) TON)

TIME FRAME = 1990.

STRATEGY : MATCH-E

SELECTED TECHNOLOGY

= NG.13 ADVANCED TECHNOLOGY, GAS TURBINE, DIRECT FIRED, COAL DER. BLR GRB

NON COGENERATION	 . !	46.39	20.02	0.0	0.0	0.0	601.53	0.0	A6.8.84	668.86	12.10	97	499.13	9, 99	499.13	ć	90	9.0		9 6		<b>P</b> .	O.		0.0	0.0
SELECTED TECHNOLOGY		0.0	9		0.0	432.36	0.0	0.0	AF 974	617.84	46.72	63 77	432.36	G	0	44.4	51.02	67.33	;	40.34	i	20.93	3.61		-16.31	-0.76
	FUEL UTILIZATION ( 10**12 BTU)	NATURAL GAS	DETOLECT ULBILLERIE	COAL GAS	COAL DERIVED DISTILLATE	COAL DERIVED RESIDUAL		OTHER	TOT FUEL CONSUMPTION(10**12 BTU)	SOURCE	IND BYPRODUCT FUEL (10**12 BTU)	TOTAL ELECTRIC CONSUMPTION	(10**12 BTU) FUEL ENERGY	ELECTRICITY PURCHASED	(10**12 BTU) FUEL ENERGY	TOT FUEL ENERGY SAVE (10**12 BTU)	SOURCE	TOT OIL AND GAS S.VE(10##12 BTU)	NATURAL GAS SAVINGS	(10**12 B1O)	OIL SAVINGS	(10**12 810)	Equiv. BBLS	CDAL SAVINGS (SOURCE)	(10**12 BTU)	(10**é TONS)

Ž	COGENERATION
SELECTED	TECHNOLOGY

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	 	1.000	0.0	0.340	0.0	•	0.0	0.0	٥.0	0.0	•. •	0.0			0.0	0.0	0.0	o. ,		0.0	727.
	0.354	0.0	999.0	0.0	0.0	3.6	44.64	2.0	0.330	0.923	1.000	0.539	9.136	0.008	0.784	0.0	0.0	0.353	0.173	0.531	184. 6. 0.0
FUEL ENERGY UTILIZATION MATIOS FUEL ENERGY SAVINSS RATIO	SITE	מאסו	ECS FUEL/J(0)	F/U(0)	SPECIFIED FUEL/U(0)	ENERGY CONVERSION SYSTEM DATA DESIGN OPTION	ECS SIZE (MW)	NO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE MASTE HEAT RATIOA	AVBL MASTE HEAT RATIO,R'HG	MASTE HEAT	AVEL HASTE MEAT RATIO,R"-500 AVEL HASTE HEAT DATTO,B'+300	HASTE HEAT	TOTAL R	RECOV HASTE HEAT RANTO,RHG	RECOV HASTE HEAT RAT 0,R-700	PASTE HEAT	RECOV WASTE HEAT RATIO,R-300 RECOV WASTE HEAT RATIO,RHW	TOTAL R	AUXILIARY POWER REGUIREOKKU) AUX THERMAL REG(10**6 BTU) COP OF HEAT PUIP

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NON-COGENERATION) U = UTILITY FUEL

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PLANT
TYPICAL
8
ACCOUNTING ( \$ 000)
COST
CAPITOL

NON-COGEN TOTAL	353.			1351. 22. 22. 24. 24. 33. 29. 29. 29. 29. 29. 29. 30. 30.
T01AL	8 9 9 9 8	• • • • •	6993. 3102. 3102. 0. 1902. 11997.	128. 128. 0. 0. 0. 132. 1942. 1942. 4531. 17476.
***** SELECTED TECHNOLOGY QUIPHENT INSTALLATION	<b>j</b> o o j		266 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	126. 0. 136. 137. 413. 3716.
**** SELEC	722. 0. 722.		4925 3 102. 102. 142. 946. 946.	2039. 1529. 13760.
COST CATEGORY  1. FUEL/HASTE HAPDLING AND STORAGE	1.1 FUEL STORAGE AND RETRIEVAL 1.2 LIMESTONE STORAGE AND RETRIEVAL 1.3 WASTE HANDLING SYSTEMS SUB-TOTAL	2. ECS MEAT SOURCE 2.1 HEAT SOURCE 2.2 SPECIAL EMISSIONS CONTROLS 2.3 FEED WATER SYSTEMS 2.4 GASIFIER(ECS) SUB-TOTAL		4. THERHAL STORAGE 5. SUPPLEHENTARY HEATCFURNACE, BOILER) 6. HEAT REJECTION 7. OTHER BALANCE OF PLANT ITEMS 7.1 SITE PREPARATION 7.2 STRUCTURES 7.3 ELECTRICAL COMDITIONING & CONTROL SUB-FOTAL 8. INDIRECT COSTS 6.1 CONTINSENCY 6.2 ENGINEERING AND FEES SUB-TOTAL COST ESTIMATE CONSTRUCTION TIME(YEARS) CAPITAL COST EXPENDITURE

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Ž	COGENERATION
SELECTED	TECHNOLOGY

APRUAL COSTS

60.00.00.00.00.00.00.00.00.00.00.00.00.0	22505. 6571. 0. 25933. 0. 0. 0.	24586. 34591.	-	1726.437 657.486 69.057 26.299 345.286 131.497 4972.133 1099.820	0.0 2790.276 0.0 2790.276 0.0 550.055 0.0 398.611 0.0 8530.266	
OPERATING COSTS 1990. (K\$/YR) HATUZAL GAS PETROLEUN DISTILLATE POTROLEUM RESIDUAL COAL GERIVED DISTILLATE COAL DERIVED RESIDUAL COAL COAL LIHESTONE/POLOMITE	TOTAL FUEL COST ELECTRICITY STAND-BY CHARGE 0 & N COST	TOTAL OPERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED FRAUAL COST COST SAVINGS COST SAVINGS RATIO ENVIRONMENTAL INPACT	NITROGEN OXIDES HYDROCARBONS PARTICULATES SUBIOTAL	UTILITY ENISSIONS(TON/YR) SULFUR DIOXIDE NITROGEN OXIDES MYOPOCARBONS PARTICULATES SUBIOTAL	ENISSICHS SAVINGS RATIO SULFUR DIOXIDE NITROGEN OXIDES HYDROCARBOT'S PARTICULATES TOTAL

										THE TREE THE PERSON OF THE PER				O.F.	GIV. POOL	IL P	AG.	Eigy						
HED. COAL OF R. B. R. CAD.	e e e e e e e e e e e e e e e e e e e		!	MONCHGEN COGEN	7306	- 7		180	9666. 25380.		0 0 0	67. 2000.	39301. 29261.		146.46 109.05 146.46 109.05	VEAKS		S)) = 73,116.		INFLATION RATE	VE lak sale = 50. #	ENT TAX CREDIT = 15. VRS	NTAL CAPITAL INV. = 0. E	
Start-up hate = 1440. The test of cust = Silmales = 1476.	DEPAECIATION-SIM-OF-THE-YEARS DIGITS WEINDD	AFTEN-TAK COST-OF-CAPITAL = 5.34 FIRED CHARGE MATE ON BRYESTHEM! CAPITAL = 10.1%	SCHAPL LATER SHOWS OF	•	APTITUTE OF THE STATE OF THE ST	LIFE-CYCLE COST (THAISAND) OF DURLARS)	AINHALEZED COSTS (THEMSANDS OF USELAKS)		ורייונ	: ESCALATION HATE	CUAL GAS & OTHER RESCALATION RAISE 1.08	DCH.INS.FTC. INFLATION AATE = 0.01	TOTAL SYSTEM	LEVELILED ANNUAL COST SAVINGS MATTO = 0.255	AMINAL INTPUT ZGBBBS (TUNS) LEVELITED ENERGY COSTES/IM) +	IMUISCOUNTED PAYBACK PERIOD = 2.3	OISCOUNTED CASH FLON RATE OF RETURN == 41.2	MET PRESENT VALUE OF INCREMENTAL CASH FLUM (COGEM, MINUS NONCOGEM, - (THANSANUS 'UF' DOLLARS))	. SASED IN ANNIAL CUIPIT OF PRODUCT	** HAS AN UNCHARGING VALUE IN TERMS OF CURSTANT POWER AND GROWS ANNUALLY AT THE GENERAL INFL	OF Deal 3. E	CUSTOF PREFERRED FOUTY = 0.2 TAX LIFT DENT CAPITALIZATION = 30.1 INVESTOR COMMON STOLK CAPITALIZ. = 70.1 INSURAN	¥ .0 ± .717.	

AVERAGE ENERGY REQUIREMENTS

NO.10 SIC 2812 CHLORINE/CAUSTIC PRODUCTION

TINE FRANE = 1990.

STRATEGY : MATCH-E

SELECTED TECHNOLOGY

\* NO.20 ABVANCED TECHNOLOGY, STEAM INJECT. G/T, DIR. FIRED, COAL DER. B.G.

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1,

Ž	COGENERATIO
SELECTED	TECHNOLOGY

N.3

\$ 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	666.86 668.86 12.18	46.88	46.88	••	0.0	• •	• •	• •
	419.93	46.52	• •	248.93 68.78	67.33	46.39	20.93 3.61	1.45
FUEL UTILIZATION ( 10++12 BTU) NATURAL GAS PETROLEUM DISTILLATE PETROLEUM RESIDUAL COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL	TOT FUEL CONSUMPTION(10+*12 BTU) SITE SOURCE IND BYPRODUCT FUEL (10++12 BTU)	TOTAL ELECTRIC CONSUMPTION (10**9 KIBI) (10**12 BTU) FUEL ENERGY	ELECTRICITY PURCHASED (10**9 KMH) (10**12 BTU) FUEL ENERGY	TOT FUEL ENERGY SAVE (10##12 BTU) SITE SOURCE	TOT OIL AND GAS SAVE(10##12 BTU)	NATURAL GAS SAVINGS (10**12 BTU) (10**9 CU FT)	OIL SAVINSS (10**12 BTU) EQUIV. BBLS	COAL SAVINGS (SOURCE) (10**12 bTU) (10#*6 TOMS)

COGENERATION
TECHNOLOGY

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		1.00	•	•. X•	:	:	•	:	:	:	•:	•••	• • •	• •	•:	•	•••	0.0	727.	
	0.372	:	•. \$	•	•	<b>8.</b>	\$	2.0	9.340	124.0	155.0	. 362	0.072	0.551	•	6.8	10.0	0.551	179.	::
FUEL ENERGY UTILIZATION RATIOS FUEL ENERGY SAVINGS RATIO	SOURCE	מענפו	ECS FUEL/WOI	FAKEI	SPECIFIED FUEL/M&)	ENERGY CONVERSION SYSTEM DATA DESIGN OPTION	ECS 512E (M4)	HD. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE MASTE NEAT RATIOA		HASTE HEAT	AVGL MASIE MEAT RAILO,W'-500 AVGL MASTE MEAT RATIO,R'-500 AVGL MASTE MEAT DATIO,B'HU	TOTAL R	HASTE HEAT	RECOV HASTE MEAT RATIO.R-700 RECOV.HASTE MEAT RATIO.R-500	WASTE NEAT 6 WASTE NEAT 6	TOTAL R		COP OF HEAT PUMP

F \* AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NON-COGENERATION) U \* UTILITY FUEL

## CAPITOL COST ACCOUNTING FOR TYPICAL PLANT (\$ 000)

' 6<u>18.</u>

4

NON-COGEN TOTAL	ğ • • ÿ		•••••	1351.	÷	22. 211. 24.	943. 332. 736.	29% 3000 4000 4000
TOTAL	ģ••ģ	****	**************************************		•	H	2675. 2807. 4662.	10059. 1. 16497.
ECTED TECHNOLO INSTALLATION	;••;	••••			÷	132. 6. 7. 135.	597. 448. 1045.	6031. 1. 4128.
#### SELECTED TECHNOLOGY EQUIPMENT INSTALLATION	į · · į	••••		<b>.</b> .	÷		2078. 1559. 3637.	14026.
LOST CATEGORY  1. FUEL/MASTE NAMBLING AND STORMGE	1.1 FUEL STORAGE AND RETRIEVAL 1.2 LIMESTONE STORAGE AND RETRIEVAL 1.3 MASTE NANDLING SYSTEMS 548-TOTAL	2. ECS HEAT SOUNCE 2.1 HEAT SOUNCE 2.2 SPECIAL ENISSIONS CONTROLS 2.3 FEED HATER SYSTEMS 2.4 GASTFIERECS) SUB-TOTAL	 3.1 PRIMARY ENERGY CONVERTER 3.2 PRIMARY GENERATOR/INVERTER 3.3 SECONDARY ENERGY CONVERTER 3.4 SECONDARY ENERGY CONVERTER 3.5 BOTTCHING CYCLE VAPOR GENERATOR 3.6 NEAT RECOVERY EQUIPMENT 3.7 COMDENSERS 3.8 MEAT PUMP 5.03-TOTAL	4. THEPHAL STORAGE 5. SUPPLEMENTARY HEATTFURMACE, BOILER I	6. MEAT REJECTION 7. OTHER DALANCE OF PLANT ITEMS		DDIRECT COSTS     A.1 CONTINSENCY     B.2 ENGINEERING AND FEFS     SUB-TOTAL	TOTAL CAPITAL COST ESTIMATE CONSTRUCTION TINE(YEARS) CAPITAL COST EXPENDITURE

SELECTED NON
TECHNOLOGY COGENERATION

*********	21850. 21850. 200. 200. 200. 200.	21859. 6571.	6. 2993. 6. 6. 1932. 67. 23796. 34591.	26479. 36335. 1668. 363. 28347. 39136. 16791. 6.	2749.982 1983.537 1676.816 657.494 67.873 26.299 335.364 131.497 4629.238 1898.820	0.0 4703.320 0.0 2790.276 0.0 550.055 0.0 396.471 0.0 0530.266	4829.230 10429.062	0.531 0.51> 0.0 0.055 0.367 0.005	0.537 0.0	•••
ANNUAL COSTS	OPERATING COSTS 1990. (K6/TR) NATURAL GAS PETROLEUM DESTILLATE PETROLEUM RESIDUAL COAL GAS COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL COAL DINER	TOTAL FUEL COST	ELECTRICITY STAID-BY CHARGE O A N COST TOTAL OPERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED ANSMAL COST COST SAVINGS COST SAVINGS	ENVIRORENTAL FIJACT PLAIT ENISSIONES TON/TR) SULFUR OTOXIDE HTROGEN OXIDES HYDROCARGOS PARTICULATES SUBTOTAL	UTILITY ENISSICHE: TOW/VR) SULFUR DIONIDE HITMOGEN OXIDES HYDROCAEGOMS PARTICULATES SALTOTAL	TOTAL	ENISSIGNS SAVINGS RATIO SULFUR DIOXIDE HITROSEN OXIDES NVCRCCAFICMS PARTICULATES	TOTAL	SOLID MASTES

######################################	•	YOF.	Syste					,	0							•
2.5.4.14.14.14.14.14.14.14.14.14.14.14.14.1	r-imilman thank jairimb Kuluentak ima mas		AFTRATE CHIST-WE-LAWIDE & 5.74 Fixed Charle Rate im Investment Capital & 10.17 Gentral Inclation Rate & 0.07		444	2445		39301. 20	146.46 106.00 146.46 106.00		. 70104.	ANT PINCHASING NFLATION RATE	IVE TAX	FE = 1	NCE C ENTAL	

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AVERAGE ENERGY REQUIREMENTS

V

NO.10 SIC 2012 CHLORINE/CAUSTIC PRODUCTION

TIME FRAME = 1990.

STRATEGY : MATCH-E

\* NO.30 ADVANCED TECHNOLOGY, FUEL CELL, HIGH TEMP, COAL DER. DIST. SELECTED TECHNOLOGY

TONS) TON)

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Z:	COGENERATION
SELECTED	TECHNOLOGY

6.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	668.86	46.80	46.60	90 0		00	• •
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	392.62 604.25 48.72	46.43	0.0	276.24 64.61 67.33	46.39	20.93	-2.71
FUEL UTILIZATION ( 16**12 BTU) HATURAL GAS PETROLEUM DISTILLATE PETROLEUM RESIDUAL COAL GAS COAL DERIVED DISTILLATE COAL COAL OTHER	TOT FUEL CONSUMPTION(10**12 BTU) SITE SOURCE IND BYPRODUCT FUEL (10**12 BTU)	TOTAL ELECTRIC CONSUMPTION (10**9 KWN) (10**12 BTU) FUEL ENERGY	ELECTRICITY PURCHASED (10**9 KUM) (10**12 BTU) FUEL ENERGY	TOT FUEL ENERGY SAVE (104*12 BTU) SITE SOURCE TOT OIL AND GAS SAVE(184*12 BTU)	NATURAL GAS SAVINGS (10**12 BTU) (10**9 CU FT)	01L SAVINGS (10**12 BTU) EQUIV. BBLS	COAL SAVINGS (SOURCE) (10**12 BTU) (10**6 TOMS)

SELECTED NON
TECHNOLOGY COGENERATION

FEET
SPECIFIED
I INCLIDES
FUEL
: = AUXILIARY

F = AUXI
U(0) = UTILITY FUEL (NON-COGENERATION)
= UTILITY FUEL
FUEL UTO
U = UTILITY F

<b>9</b> 0	1.000	0.0	0.340	0.0	•	9.0	0.0	9.	0,0	0.0	<b>.</b> 0		0.0	0.0	9.0	9 0	0.0	o. o	727.	.0.0
0.413	•.	0.787	· ·	0.0	<b>3.0</b>	44.55	2.0	0.359	0.693	•	0.511	0.131	9.926	0.0	0.0	0.192	600.0	0 612	<b>6</b>	
FUEL ENERGY UTILIZATION AATIOS FUEL ENERGY SAVINGS RATIO SITE SOURCE	U/U(e)	ECS FUEL/U(Q)	FAUG)	SPECIFIED FUEL/U(0)	ENERGY CONVERSION SYSTEM DATA DESIGN OPTION	ECS SIZE (MM)	NO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE MASTE HEAT RATIOA	AVBL HASTE HEAT RATIO,R"HG	AVBL MASTE HEAT RATIO,R'-700 AVBL HASTE HEAT RATIO,R'-500	HASTE HEAT RATIO,R'114 HASTE HEAT RATIO,R'III	TOTAL R	HASTE HEAT	RECOV MASTE HEAT RATIO,R-700	NASTE HEAT	RECOV MASSE MEAT RAILD, RHW	TOTAL R		COP OF HEAT PUMP

-389-

1.

OR TYPICAL	
APITOL COST ACCOUNTING FOR	(\$ 000)
COST	
APITOL	

NON-COSEN TOTAL	35. 0 0 i. 35.	<b>.</b>	263. 263.	ó	<b></b>	<b>.</b> .	••	••	•	1351.	•		211. 211. 16.		443. 332. 775.	2992. 0. 3004.
7 *** TOTAL	ğ • • • §	<b>.</b>		16690.	4455		1762.	6. 25117.	•	•	÷		257. • • • • .		5192. 3694. 9085.	35044. 1. 35895.
#### SELECTED TECHNOLOGY QUIPMENT INSTALLATION	<b>.</b>	<b>.</b> .		891.	••	<b>.</b> .	<b>.</b>	991.	ó	•	•		257. 0. 0. 257.		246. 165. 431.	1664. 1. 1704.
**** SELE	8 9 9 9 9 9	6 6		17989.	4455		1762.	0. 24226.	ó	•	•		• • • •		4945. 3709. 8654.	35360. 6. 34191.
COST CATEGORY  1. FUEL/MASTE HAMDLING AND STORAGE	1.1 FUEL STORAGE AND RETRIEVAL 1.2 LIMESTONE STORAGE AND RETRIEVAL 1.3 MASTE HAMDLING SYSTEMS SUB-TOTAL	2. ECS HEAT SOURCE 2.1 HEAT SOURCE 3.2 SEPETAL ENTSETONS CONTROLS		5. ENERGI CONVERSION SISIEM ELS)					4. THERMAL STORAGE	5. SUPPLEHENTARY HEAT(FURNACE, BOILER)	6. HEAT REJECTION	7. OTHER BALANCE OF PLANT ITEMS	7.1 SITE PREPARATION 7.2 STRUCTURES 7.3 ELECTRICAL CONDITIONING & CONTROL SUB-TOTAL	8. INDIRECT COSTS	8.1 CONTINGENCY 8.2 ENSINEERING AND FEES SUB-TOTAL	TOTAL CAPITAL COST ESTIMATE CONSTRUCTION TIME(YEARS) CAPITAL COST EXPENDITURE

SELECTED NON
TECHNOLOGY COGENERATION

ANRIAL COSTS

			. 3459	303. 303. 303. 303. 303.	3 1063.537 1 657.486 26.299 8 131.497 3 1696.620	4763.326 2790.276 556.055 398.611 8530.266	25 110 100 100 100 100 100 100 100 100 10
	25052	1706.	26757.	29639. 3625. 33464. 5674.	1767.253 272.791 0.0 106.608 2166.653		0.695 0.921 1.000 0.792 0.792
OPERATING COSTS 1990. (K\$/TR) NATURAL GAS PETROLEUM DISTILLATE PETROLEUM RESIDUAL COAL GAS COAL DERIVED DISTILLATE	R STONE/DOL DTAL FUE!	ELECTRICITY STAND-BY CHARGE O & M COST		LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED ANNAN. COST COST SAVINGS COST SAVINGS RATIO	ENVIRONMENTAL IMPUCT PLANT ENISSIONS(TON/YR) SULFUR DIOXIDE NITROGEN OXIDES HYDROCARBONS PARTICULATES SUBTOTAL	UTILITY EMISSIONS(TON/YR) SULFUR DIOXIDE NITROGEN OXIDES HYDROCARBONS PARTICULATES SUBTOTAL TOTAL	EMISSIONS SAVINGS RATIO SULFUR DIOXIDE NITROGEN OXIDES HYDROCARBONS PARTICULATES TOTAL SOLID MASTES

Systems D DWNEL ... IP--INDUSTRIAL 30. YRS 15. YRS 10. X 1706. 28252. 496043. 3610. 33567. 35895 COCEN CASE 100 INDISTRY, LIMING STRATEGY-OF INDIA DWIEKUM ND:30 AUVAYCED TECHNOLUGY, FUEL CELL, ABON TEMP, COAL DER, DIST. INSURANCE & OTHER TAXES INCREMENTAL CAPITAL TWO 41416. ECONOMIC LIFE
TAX LIFE
INVESTMENT TAX CREDIT HAS AN UNCHANGING VALUE IN TERMS THE CONSTANT PURCHASING PUNER AND GRUMS ARRIVALLY AT THE CENERAL INFLATION HATE. EFFECTIVE TAX RATE 3004. 302. 67 580770. 146.46 39301 9996 NUNCUCEN NHT PRESENT VALUE OF INCREMENTAL CASH FLUM (COGEN. AINUS MINGGEN. — THOUSANDS OF DOLLARS) FE YEARS AFTEK-FAX LOS F-UF-CAPITAL = 5-3% FIXED CHARGE RATE UN INVESTRENT CAPITAL = 10-1% General Inflation Rate 0.0% DISCOUNTED CASH FLOW RATE OF RETURN # 16.6 LEVELIZED ANNUAL COST SAVINGS RATIO = 0.146 ESCALATION RATE 1.08
ESCALATION RATE 1.08
ESCALATION RATE 1.08
ESCALATION RATE 1.04
IFSCALATION RATE 1.04 DEPRECIATION-SUM-UF-INE-YEARS DIGITS METHOD SESCALATION NATE 3.68 ANIMIALIZED COSTS (THOUSANDS OF DOLLANS) LIFE-CYCLE COST ITHOUSANDS OF DOLLARS) HASED UN ANNUAL CUIPUI UF PRINCE 0.00 vy CAPITAL CUST (THOUSANDS OF INILLARS) HASE YEAR IN CUSI ESTIMATES # 1976. -256333. ITOWS! LEVELIZED ENERGY COSTIS/ICM) UNDISCHUNTED PAYBACK PENTUD CIMMIN STUCK CAPITALIZ. PREFERRED STUCK CAPITALIZ UF PAEFENNED EGUITY UNIT ENERGY CUSTIS/IUNI COMMIN EVUITY STANT-UP UATE = 1940. CAPITALIZATION CUAL CAS & UTHER ELECTPICITY
UGM, INS, FTC. FIXED PORTION ALMUAL DITPUT HITAL SYSTEM NATURAL GAS DISTILLATE 1 KFS JOUAL 5 5 tre8 1 COST CUST 392

V

AVERAGE ENERGY REQUIREMENTS

NO.12 SIC 2621 LOH DENSITY POLYETHYLENE

TOHS)

TIME FRAME = 1990.

STRATEGY : MATCH-E

SELECTED TECHNOLOGY = NO.24 ADVANCED TECHNOLOGY, COMB.CYCLE, DIRECT FIRED, COAL DER. B.6.

2	COGENERATION
SELECTED	TECHNOLOGY

13.44	4.65	<b>9</b>	0.0	153.79	2.59	;	174.48	174.48	• •	90	K	148.62	;	\$.°	148.62		•	0.0	0.0	•	9.0	9 9	•	• •	o. o	•	. 0
0.0		o	115.39	0.0	0.0		115.39	164.89	0.0	:	13.40	114.97	,	0.0	<b>o</b> .		59.09	9.58	18.10	;	13.44	14.45		4.65	0.80	:	-11.10
FUEL UTILIZATION ( 10##12 BTU) NATURAL GAS	PETROLEUM DISTILLATE PETROLEUM RESIDUAL	GAS	COAL DERIVED DISTALLATE	COAL DERING RESIDENT	OTHER	TOT FUEL COMSUMPTION(10**12 BTU)	CTTE	Source	IND BYPRODUCT FUEL (10*#12 BTU)	TOTAL ELECTRIC CONSUMPTION	(10km9 KLM)	(10**12 BTU) FUEL ENERGY	ELECTRICITY PURCHASED	1.50% G##67.7	(10**12 BTU) FUEL ENERGY	TOT FILET ENERGY SAVE (10##12 BTU)	CITE	SOURCE	TOT OIL AND GAS SAVE(10**12 BTU)	NATURAL GAS SAVINGS	(10**12 BTU)	(10**9 CU FT)	OIL SAVINGS	(198#12 BTU)	EQUIV. BBLS	COAL SAVINGS (SOURCE)	(10**12 BTU)

Ž	COGENERATION
SELECTED	TECHNOLOGY

0.339 0.0 0.055 0.0	3.000	0.774 0.0	0.003 0.174	0.0	8.9	16.26 8.0	2.0 0.0	0.415 0.0	0.00 500.0	0.614 0.0	•	0.040		0.368 0.0	0.569 0.0	00	0.368 0.0	257. 140. 2. 0. 0.0 0.0
FUEL ENERGY UTILIZATION RATIOS FUEL ENERGY SAVINGS RATIO SITE SCURCE	חיתופו	ECS FUEL/Js(0)	FAGO	SPECIFIED FUEL/U(0)	ENERGY CONVERSION SYSTEM DATA DESIGN OPTION	ECS SIZE (MI)	NO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE MASTE HEAT RATIOA	AVBL MASTE HEAT RATIO,R'HG	HASTE HEAT RATIO,R'-700	AVOL MASIE MEAI MAILU,M'-500 AVBL MASTE HEAT RATIO,M'-300	MASTE HEAT RATIO,R'HU	TOTAL R	MASIE NEAT RAIIO,R-/00 /,WASTE MEAT RAIIO,R-500	PATIO, R-300 PATIO, RHH	TOTAL R	AUXILIARY POHER REQUIREDIKH) AUX THERNAL REQIIO**6 BTU) COP OF HEAT PUNP

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NON-COGENERATION) U = UTILITY FUEL

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2° - 2

PLANT	
TYPICAL	
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ACCOUNTING F	
<b>C03</b>	
CAPITOL	

131

			•		
COST CATEGORY  1. FUEL/MASTE HARMITME AND	EQUIPMENT	PRESE SELECTED TECHNOLOGY QUIPMENT INSTALLATION	#	NON-COSEN TOTAL	
1.1 FUEL STORAGE AND RETRIEVAL	263.	*			
1.3 MASTE HANDLING SYSTEMS SUB-TOTAL	••	-		<b>;</b> • •	
2. ECS HEAT SOURCE	283.	<b>%</b>	Ä	÷.	
2.1 HEAT SOURCE 2.2 SPECIAL EMISSIONS CONTROLS 2.3 FEED WATER SYSTEMS	•••	<b>.</b>	••	<b>.</b>	
SUB-TOTAL SUB-TOTAL ENERGY CONVERSION SYSTEM ECS)	•••	<b>.</b>	•••	, i i i i	
PRIMARY EI PRIMARY GI SECONDARY SECONDARY	1646. 3136.	77.	2420. 1136.	• •	
	663. 794. 178.		26%. 683. 0. 1100.		
THERMAL STORAGE	6506.	1951.	0457.	<b>.</b> .	
SUPPLENENTARY HEATIFURNACE, BOILER)	<b>.</b>	• •	•	•	
MEAT REJECTION OTHER BALANCE OF PLANT ITENS	319.	162.	. P	307.	
7.1 SITE PREPARATION 7.2 STRUCTURES 7.3 ELECTRICAL COMDITIONING & CONTROL SUB-TOTAL	6. 521. 4. 525.	96. 9. 7.	96. 521. 12. 630.	મે કો ને <u>ફે</u>	
6.1 CONTINGENCY 6.2 ENGINEERING AND FEES SUB-TOTAL	1527. 1145. 2672.	455.	1961.	307. 60.	
TOTAL CAPITAL COST ESTIMATE COMSTRUCTIOM TIME(YEARS) CAPITAL COST EXPENDITURE	10305. 0. 10812.	3069. 3220.	3467. 13375. 2. 14039.	721.	

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SOLID WASTES

Ž	COGENERATION
SELECTED	TECHNOLOGY

ANNUAL COSTS

134	1761.	16512. 0. 17.	12310.	13622. 73. 13695. 0.0	225.141 136.614 5.465 27.323 396.542	1936.923 1131.039 226.208 161.577 3457.746	3952.200	• • • •	•••
9177.	•177.	730.	8906.	9912. 1417. 11329. 2566. 6.165	1028.694 627.241 25.090 125.448 1006.473	• • • • •	1606.473	6.528 6.508 6.508 6.390	0.531
OPERATING COSTS 1990. (K\$/YR) NATURAL GAS PETROLEUN DISTILLATE PETROLEUN RESIDUAL COAL GAS COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL OTHER LIMESTONE/DOLONITE	TOTAL FUEL COST	ELECTRICITY STAND-BY CHARGE O L H COST	TOTAL OPERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED ANUAL COST COST SAVINGS COST SAVINGS RATIO	ENVIRONTENTAL IMPACT PLANT ENISSIGNSTON-YR) SULFER DIOXIDE HITROGEN OXIDES HYDROCARBONS PARTICULATES SUBTOTAL	UTILITY EMISSIONS(TON/YR) SULFUR DIOXIDE NITROGEN OXIDES HYDROCARGCHS PARTICULATES SUBTOTAL	TOTAL	ENISSIONS SAVINGS RATIO SULFUR DIOXIDE HITROGEN OXIDES HYDROCARBONS PARTICULATES	TOTAL

CLATTER THROUGHOUS OF POLICES 1972.  STATE COLD THROUGHOUS OF POLICES  CLATTER COLD THROUGHOUS OF POLICES  TARGET COLD THROUGH COLD THROUGH TH						i V
THE DATE = 1990.  THE ALL COST CAST ESTIMATES = 1978.  CLIATIONE-SUR-OF-CAST DIGITS HE HADD  L-FAX COST-OF-CAST TAL = 5.38  THE ALL INCLASE RATE THE SOLUTION AND SURFERENCE OF THE SURFERENCE O	CASE P& INDUSTRY-LIN DENS. POLYETHYL ST 40.24 ATWANGED TECHNOLUGY,CUMB.CYCLE,PI	IATCH-E FD,CDAL	<u> </u>			
TATA COST-OF-CAPITAL	START-UP DATE = 1946. BASE YEAR UF CUST ESTIMATES = 1978.			· complete and design of the control		
1-TAN COST-OF-CAPITAL = 5.38   1-TAN COST-OF-CAPITAL = 6.18   1-TAN CAST OF THE STREET CAPITAL = 16.18   1-TAN CAST OF THE STREET CAST OF THE ST	GEPRECIATION-SUN-DF-THE-YEARS DIGITS NE		area de dinamente outre importe de article de article de article de article de article de article de article d	o sanda denominar en eliferación de servición de referención el desta desta desta desta de elemente de ser el d		
ACCEST   TYRTUSANDS OF FOLLARS   724.   1376	AFTER-TAX COST-OF-CAPITAL = 5.34 FIXED CHARGE RATE ON INVESTMENT CAPITAL GENERAL INSLATION RATE = 0.00	- 10.1t				
CUST   THRUSANDS OF FOLLARS    724.   1376			Chek	de aufornitario de ceter chimien direct abreche de constitue, en april 1888 e April 1888 de Carles de Artestaux	to the dept. Children was the same of the	
CYCLE COST (THRUSANDS OF POLLARS)  CYCLE COST (THRUSANDS OF POLLARS)  LILED COSTS (THRUSANDS OF DOLLARS)  LILED COSTS (THRUSANDS OF DOLLARS)  LILED COSTS (THRUSANDS OF DOLLARS)  THE CAST TO THRUSANDS OF DOLLARS)  THE CAST TREATMENT TO THE BOOT TO THRUSTELL TO THRUS THREE BOOT TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST TO THRUST THR						
	CAPTTAL COST (THRUSANDS OF NOLLARS)	724.	13762.	ann sammenn sennallinu minit gelichter für schlieber sammen die bestehn des sammen seines des sammen sennallin		
	LIFE-CYCLE COST (TWOUSANDS OF DULLARS)	206192.	147967.			A CAMPAGE A IN CAMPAGE A
	CHANSAMOS OF	73.	1376.		: .	
STATE	PECPALATION DAYER				manufacturate and an extern of minimum of the contract of the	
Cas & Dinea   ESCALATION RATE   1.00   0.	FSCALATION RATES	Č	9,			
Cas & Diver	ESCALATION NATES			oran entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre		
FELTZEU ANNUAL CUST SAVINGS RATIO = 0.187  FELTZEU ANNUAL CUST SAVINGS RATIO = 0.187  IL DUTPUT 190606.170831  LIZER EREGY COSTIL/TON1 • 7.2 YEARS  LIZER EREGY COSTIL/TON1 • 7.2 YEARS  SCHIMTED PAYRACK PERIUD = 5.2 YEARS  SCHIMTED PAYRACK PERIUD = 5.2 YEARS  SCHIMTED PAYRACK PERIUD = 5.2 YEARS  SCHIMTED PAYRACK PERIUD = 5.2 YEARS  SCHIMTED CASH FLOW RATE UF RETURN = 18.0 x  RESENT VALUE OF INCREMENTAL CASH FLOW  RESENT VALUE OF INCREMENTAL CASH FLOW  RESENT VALUE OF INCREMENTAL CASH FLOW  RESENT VALUE OF INCREMENTAL CASH FLOW  RASED THEOGRAPH AND CASH IN TERMS OF CONSTANT PURCHASING  SINCE AND CARDES AN-MALLY AT THE GENERAL INFLATION RATE  OF CUMPAND EQUITY = 3. 4 EFFECTIVE TAX RATE  OF CUMPAND EQUITY = 3. 4 EFFECTIVE TAX RATE  CAPITALIZATION = 30.4 INVESTMENT TAX CREDIT  ON STOCK CAPITALIZ. = 70.7 INSURANCE COURS TAYES  ERRED STOCK CAPITALIZ. = 70.7 INSURANCE COURS TAYES  ERRED STOCK CAPITALIZ. = 70.7 INSURANCE COURS TAYES  ERRED STOCK CAPITALIZ. = 70.7 INSURANCE COURS TAYES	GAS & DIMER RESCALATION RATES	****	0 0			
AL SYSTEM   190000.17083   13953.	I INFLATION RATE *		738.		The state of the s	Andrews and the second of the second
TELIZED ANNUAL CUST SAVINGS RATIO = 0.187  IL DUTPUT 190000.TTONS)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY COSTIS/TON)  ENERGY CONSTANT PURCHASING  FOR COMPANIO CACUASING  FOR COMPANIO CACUASING  FOR COMPANIO CACUASING  FOR COMPANIO CACUASING  FOR FREENIED FOULTY  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY CAPITALIZATION  ENERGY COSTIS/TON  ENERGY COSTIS/TON  ENERGY COSTIS/TON  ENERGY COSTIS/TON  ENERGY COSTIS/TON  ENERGY COSTIS/TON  ENERGY COSTIS/TON  ENERGY COSTIS/TON  ENERGY COSTION  ENERGY COSTIS/TON  ENERGY COSTIS/TON  ENERGY COSTION  ENERGY C	TOTAL SYSTEM		11330.			
IL DUTPUT 140000.170851  LIZED EREGY COSTILVTON1 **  ENERGY COSTILVTON1 **  CONNIED PAYACK PERIUD **  SCHWIED CASH FLOW RATE OF RETURN **  RESENT VALUE OF INCREMENTAL CASH FLOW  RESENT VALUE OF INCREMENTAL CASH FLOW  RESENT VALUE OF INCREMENTAL CASH FLOW  RESENT VALUE OF INCREMENTAL CASH FLOW  RESENT VALUE OF INCREMENTAL CASH FLOW  RESENT AND CASH FLOW BOTTON BATE  OF CLOWER AND CASHS ANIMALLY AT THE GENERAL INFLATION BATE  OF CLOWER ENDITY **  OF PREFERRED FOULTY **  OF PREFERRED FOULTY **  OF PREFERRED FOULTY **  ON THINSTRUMENT THE CAPITAL SHEET  CAPITAL LIFE  OF PREFERRED FOULTY **  ON THINSTRUMENT THE CAPITAL SHEET  ON STOCK CAPITALIZE **  ON STOCK CAPITALIZE **  ON THINSTRUMENT THE CAPITAL SHEET  ERRED STOCK CAPITALIZE **  ON THINSTRUMENT THE CAPITAL SHEET  ON STOCK CAPITALIZE **  ON THINSTRUMENT THE CAPITAL SHEET  ON STOCK CAPITALIZE **  ON THINSTRUMENT THE CAPITAL SHEET  ON STOCK CAPITALIZE **  ON THINSTRUMENT THE CAPITAL SHEET  ON STOCK CAPITALIZE **  ON THINSTRUMENT THE CAPITAL SHEET  ON STOCK CAPITALIZE **  ON THINSTRUMENT THE CAPITAL SHEET  ON THE CAPITAL SHEET  ON THINSTRUMENT THE CAPITAL SHEET  ON THE CAPITAL SHEET  ON THINSTRUMENT THE CAP	SAVINGS RATIO	ì				
SCHWIED PAYRACK PERIDD = 5.2 YEARS  DUNTED CASH FLOW RATE OF RETURN = 18.0 %  PRESENT VALUE OF INCREMENTAL CASH FLOW  FRI RIUS TRUNCOGEN TRIGOTSAINS OF COLLEASIN = 11  RASED ON AMMIAL MITPHIT OF PRODUCT  RASED ON AMMIAL MITPHIT OF PRODUCT  RASE AND GROWS AN-MALLY AT THE GENERAL INFLATION RATE  OF CHMAN EMHITY = 3.4 EFFECTIVE TAX FATE  OF CHMAN EMHITY = 3.4 EFFECTIVE TAX CRE  TOF PREFERRED FOULTY = 3.4 INSTRUMENT TAX CRE  OR STUCK CAPITALIZ. = 30.4 INSTRUMENT TAX CRE  FRRED STOCK CAPITALIZ. = 5.4 INSTRUMENT CAPISE	IL DUTPUT 146066.110851 17 EP EREGY COST (*/104) EMERGY COST (*/104)	73.44	99.68		The second of th	· · · · · · · · · · · · · · · · · · ·
PRESENT VALUE OF INCREMENTAL CASH FLOW FRI MILLOS TRONCOGEN. — TRACOSATENS OF COLLEASING TO THACK AND GROWS AN ULALLY AT THE GENERAL INFLATION BAY TOF PREFERRED FOULTY		5.2				
PRESENT VALUE OF INCREMENTAL CASH FLOW  RASEO ON AMMINITORIES TROUGHT  HAS AN UNCHANGING VALUE IN TERMS OF CONSTANT PURCHASS  POWER AND GROWS AN-MALLY AT THE GENERAL INFLATION BAT  OF PEFFENATED FOUTTY = 3, 4 EFFCTIVE TAX RATE  OF CHERRIED FOUTTY = 0, 4 TAX LIFE  TOP PREFENATION TAX CRE OTHER LABITATION = 30, 4 INVESTMENT TAX CRE OTHER CAPITALIZES = 30, 4 INSTRUMENT CAPITALIZES  TOP STOCK CAPITALIZES = 5, 4 INSTRUMENT CAPITALIZES	i	i				# # # # #
IN TERMS OF CONSTANT PUR   V AT THE GENERAL INFLATION   V AT THE GENERAL INFLATION   V AT THE NO. 1 INVESTMENT TO. 1 INSINANCE E OF THE THE NO. 1 INSINANCE E OF THE THE NO. 1 INSINANCE E OF THE THE NO. 1 INSINANCE E OF THE THE NO. 1 INSINANCE E OF THE NO. 1 INSINANCE E	MET PRESENT VALUE OF INCREMENTAL CASH F	ji * i				; .*
E IN TERMS OF CONSTANT PUBLICATION AT THE GENERAL INFLATION B. 9. 4 EFFECTIVE TAILS 9. 4 THE TAILS 10. 7 INSTINANCE C. 116. 4 THERMSTALL STORMSTALL B. 50. 4 THERMSTALL B. 50. 4 THERMSTALL B. 50. 4 THERMSTALL B. 50. 4 THERMSTALL B. 50. 50. 6 THERMSTALL B. 50. 6 THERM				The second secon	,	
* 3. 4 EFFCTIVE TAX * 7. 6 ECOMMIC LIFE * 30. 1 INVESTMENT TAX * 70. 7 INSTRUME E OFF	HAS AN UNCHANGING POWER AND GROWS AN				• •	F., .
2000	OF Perf	F 70X	2 00			
= 70. °	.,* *	TAK LIFE INVESTMENT TAK CREDI	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
		INSINANCE COTHER TA	765 * 3. 1			<i>i</i>

AVERAGE ENERGY REQUIREMENTS

HO.19 SIC 2911 PETROLEUM REFINGUE

TIME FRAME . 1990.

STRATEGY : OPTIMEN

SELECTED TECHNOLOGY

\* HO.15 ABVANCES TECHNOLOGY, GAS TUMBENE, BERECT FEMED, COALLIFFS!

SELECTED HON TECHNOLOGY COGNERATION

1973. X	4000.15 4000.15	27.50	27.50	• •	•	• •	• •	• •
2131.79	2131.79	29.67	-226.85	1936.36 1956.36	2909.38	1973.32	936.06	-1636.08
FUEL WILLEATION ( 10==12 BTU) NATURAL GAS PETROLEUM RESIDUAL COAL GAS COAL DERIVED DISTILLATE COAL DERIVED RESIDUAL COAL	TOT FUEL CONSUMPTION 18**12 BTU) SITE SOURCE THE BYPRODUCT FUEL (18**12 BTU)	TOTAL ELECTRIC CONSUMPTION (10mm) KMH1 (10mm) KMH1 (10mm) KMH1	ELECTRICITY PURCHASED (10==9 KMH) (10==12 BTU) FUEL ENERGY	TOT FUEL EMEPGY SAVE (10++12 BTU) SITE SOURCE	TOT DIL AMD GAS SAVE(10**12 BTU)	NATURAL GAS SAVINGS (10**12 BTU) (10**9 CU FT)	JIL SAVINGS (10**12 STU) EQUIV. EBLS	COAL SAVINGS (SOURCE) (184412 8TU) (18446 TOMS)

SELECTED NON
TECHNOLOGY COGEMERATION

	.RNG
V.WASTE HEAT	HEAT FHEAT FINE

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL) U(0) = UTILITY FUEL (NON-COGENERATION) U = UTILITY FUEL

L PLANT	
TYPICAL	
5	
<b>ACCOUNTING</b>	14 000
COST	
CAPITOL	

	COST CATEGORY	**** SELI	4**** SELECTED TECHNOLOGY QUIPMENT INSTALLATION	OGY ***	NON-COGEN TOTAL
<b>:</b>	FUEL/MASTE HANDLING AND STORAGE				
		10010.		17022.	3453.
		4047.	•	9061.	•
	1.5 MASTE HANDLING STSTEMS	1830.	. 2564.	.0002	
	14:01-80e				
ĸ	ECS HEAT SOURCE				
	2.1 HEAT SOURCE	49661.	42982.	112644.	ó
	2.2 SPECIAL EMISSIONS CONTROLS	. 52	۲.	32.	ė
		454.	191.	645.	736.
	2.4 GASIFIER(ECS)	76146	. 0 63181	113321.	736.
ri.	ENERGY CONVERSION SYSTEM(ECS)				
	3.1 PRIMARY ENERGY CONVERTER	28624.	7040.	35064.	ė
		10560.	•	10560.	•
	SECONDARY	ė	ó	ė	ö
		ö	ó	•	•
	-	•	•	•	d (
	_	17763.	. 9246	23269.	
			•	•	<b>.</b>
	S.S REAL PURE	57147.	12566.	69713.	
÷	THERMAL STORAGE	•	÷	•	•
ĸ,	SUPPLEMENTARY MEAT(FURNACE, BOILER)	1964.	680.	2644.	3763.
÷	HEAT REJECTION	ė	ó	•	•
÷	OTHER BALANCE OF PLANT ITEMS				
	7.1 SITE PREPARATION	•	2129.	2129.	. 96
		ö	ö	•	539.
		27.	Š.		103.
	SUB-TOTAL	.72	2107.	Z 1 %	.92/
ė	INDIRECT COSTS				
	8.1 COHTINGENCY	29193.	13614.	43007.	1736.
	8.2 ENGINEERING AND FEES	21895.	10360.	32255.	1302.
	TOTAL CAPITAL COST ESTIMATE	197052.	93243.	290294.	11716.
	CONSTRUCTION TINE(YEARS)	913456	101005	3.	11765.
			•	-	

SELECTED NON

1 1 1 1	125301. 0. 0. 0. 0. 0.	9922. 0. 257. 135480. 152113. 1166. 153301.	15640.761 9612.125 384.465 1922.426 27759.816	1630.057 1067.534 213.507 152.505 3263.602	
	0. 0. 0. 0. 7555.	-49103. 0. 11466. 59499. 64475. 31760. 96236.	_	-15094.953 -8805.391 -1761.077 -1257.913 -26919.328	0.187 0.695 0.960 0.653 0.424
NARUAL COSTS		ELECTRICITY STAND-BY CHARGE O & M COST  TOTAL OPERATING COSTS LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED ARRUAL COST	ENVIRONMENTAL IMPACT PLANT ENISSIONS (TON/YR) SULFUR DIOXIDE NITROGEN OXIDES HYDROCARBONS PARTICULATES SUBTOTAL	UTILITY EMISSIONS(TON/YR) SULFUR DIOXIDE NITROGEN OXIDES HYDROCARBONS PARTICULATES SUBTOTAL	EMISSIONS SAVINGS RATIO SULFUR DIOXIDE NITROGEN OXIDES HYDROCARBONS PARTICULATES

	Po	Yer	Syste	The state of the commentation of the commentat	Div	/i siç	on	deservations and the south transfer and the second of the	eninge de designed op die oder i de de de de de de de de de de de de de	•			e en en en en en en en en en en en en en				eren eren eren er er eren er er eren er er er er er er er er er er er er er						FCR	
	· · · · · · · · · · · · · · · · · · ·	ann in anti-anti-ann bha an airte an airte an airte an airte an airte an airte an airte an airte an airte an a				enge en en en en en en en en en en en en en		and the second s								OR OF	IGII Pod	VAL	P. QU	ige Alit	3			
	e de la company de con company de	A PRINCE OF THE		COGEN	314460.	1657221.	24870-	0.0	•	102254.	-56065.	19047.	90106.		1.35		erande de la companya de la companya de la companya de la companya de la companya de la companya de la company	591236.			= 50. %	17 # 30. # 17 # 30. # AXES # 2. #	IM . = 0. 2	n is se destructions despressions despressions of a capaba to grants set of parameter the parameter than self-
	•		7.98	MUNCUGEN	111765.	2861507.	631.		14306	ė ė	1132	257.	155584.	.21	2.33	6.0 YEARS	16.4 ×	ARSI) =		CONSTANT PUNCHASING	ECTIVE TAX RATE	LIFE ESTMENT TAX CRED URANCE & UTHER T	KEMENTAL CAPITAL"	
PORT TOROTHE PUTEE	ES = 1078.	FARS DICITS HE THOU			JF NOLEARS)	S OF BULLARS	(THOUSANDS OF DULLARS)	SESCALATION RATES 3.68	RATE	RESCALATION RATE 1.08	KA IE=	ITNFLATION KATE = 0.08	nde september des menters (september des settember des september des settember des settembers des settembers d	SAVINGS HATIU = 0.42	INARRELS I SARRELI •	11		INCREMENTAL CASH FLUM	11 OF PROUNCT	LLY AT THE GENERAL	= 2.	1 10 K INVEST	m+ •0	* * * * * * * * * * * * * * * * * * * *
(3) IS ANYAREN ICENTICATIONS INMINE, NICELI	START-UP DATE = 1940. PASE YEAR OF COST ESTIMATES = 1978.	DEPRECIATION-SUM-OF-THE-VEARS DIGITS HETHOO	AFTER-TAX LOST-OF-CAPITAL = 3.5% FIXED CHARGE RATE ON INVESTMENT CAPITAL GENERAL INFLATION RATE = 0.0%	· De Britaniste (1980 - 1990 inc.) des Carpentings (17 m.) de San (1971 inc.) des Carpentins (1981 inc.)	CAPITAL COST (THOUSANDS OF NOLEARS)"	LIFE-CYCLE COST (IMMISANDS OF DULLARS)	AMMUALIZED GUSTS (THOUSAN			COAL GAS & OTHER SESCA		DEM. INS. ETC.	TOTAL SYSTEM	LEVELIZED ANNUAL COST SAVINGS NATIO	ANNUAL MITPUT 60916672-THARRELST LEVELIZED ENEKGY COST(S/BARREL) + UNIT ENEKGY COST(S/BARREL)++	URINISCAINTED PAYBALK PERIOD	UISCOUNTED CASH FLOW RATE OF RETURN	NET PRESENT VALUE OF INCREMENTAL CASH FLUM (COGEN. MITHUS MONCOGEN." -"(THOU'SANDS"DF" DOLL)	BASED ON ANNUAL DISTRUCT OF PRODUCT	** HAS AN UNCHANGING VALUE IN TERMS OF CON-	COST OF COMMON EQUITY	COST OF PROFERRED FEOTIVE PEUT CAPITALIZATION COMMON STOLK CAPITALIZ.	PREFERRED STOCK CAPITALIZ	• • • • • • • • • • • • • • • • • • • •

AVERAGE ENERGY REQUIREMENTS

NO.22 SIC 3241 CEMENT - DRY

TIME FRAME = 1990.

STRATEGY : NATCH-E

SELECTED TECHNOLOGY

= NO.37 ADVANCED TECHNOLOGY, ORGANIC RANKINE, BOTTONING

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SMOT

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SELECTED HON
TECHNOLOGY COGENERATION

46.92	0.0	25.65			235.81	0.0		300.61	300.61	0.0		2.40	57.62		5.40	57.62		•	o. 0	0.0		0.0	0.0	•	<u>•</u>	0.0		0.0	<b>.</b>
0.0	o. •	9.0		9	0.0	0.0		• ·	o. 0	0.0		•	0.0		•	0.0		0	0.0	0.0		• •	<b>.</b>		<u>.</u>	0.0		0.0	0.0
FUEL UTILIZATION ( 10**12 BTU) NATURAL GAS	PETROLEUM DISTILLATE	PETROLEUM RESIDUAL	COAL GAS	DERIVED		ОТИЕЯ	TOT FUEL CONSUMPTION( 10**12 BTU)	SITE	Source	IND BYPRODUCT FUEL (10**12 BTU)	TOTAL ELECTRIC CONSUMPTION	(10**9 KMI)	(10**12 BTU) FUEL ENERGY	ELECTRICITY PURCHASED	(10**9 KM)	(10**12 BTU) FUEL ENERGY	TOT FUEL ENERGY SAVE (10**12 BTU)	SITE	SOURCE	TOT OIL AND GAS SAVE(10##12 BTU)	NATURAL GAS SAVINGS	(10**12 BTU)	(10**9 CU FT)	OIL SAVINGS	(10**12 BTU)	EQUIV. BBLS	COAL SAVINGS (SOURCE)		(10**6 TONS)

SELECTED NON
TECHNOLOGY COGENERATION

F = AUXILIARY FUEL (INCLUDES SPECIFIED FUEL)
U(0) = UTILITY FUEL (NON-COGENERATION)
U = UTILITY FUEL

-1000.000 0.0	0.0	0.0	4.217	0.0	0.0	0.0	0.0 0.0	0.0 0.0	0.0	0.0	•	0.0		0.0 0.0		-			0.0	0. 56.	.0	0.0
FUEL ENERGY UTILIZATION RATIOS FUEL ENERGY SAVINGS RATIO SITE SOURCE -10	מישונים	ECS FUEL/U(0)	F/U(B)	SPECIFIED FUEL/U(0)	EHERGY CONVERSION SYSTEM DATA DESIGN OPTION	ECS SIZE (MA)	NO. OF UNITS	ECS ELECTRICAL EFF-ETAE	SENSIBLE MASTE HEAT RATIOA	AVBL MASTE HEAT RATIO.R"HG	HASTE HEAT	AVBL WASTE HEAT RATIO,R'-500 AVBL WASTE HEAT RATIO,R'-300	HASTE HEAT RATIC, R'HH	TOTAL R	HASTE HEAT	RECOV WASTE HEAT RATIO,R-700	RECOVERAGIE MEAT RATIO,R-300	OV MASTE HEAT RATIO, RHH	TOTAL R	AUXILIARY POWER REQUIRED(KW)	THERMAL	COP OF HEAT PUMP

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## CAPITOL COST ACCOUNTING FOR TYPICAL PLANT (\* 800)

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**** SELECTED TECHNOLOGY *** EQUIPMENT INSTALLATION TOT
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SELECTED	TECHNOLOGY

	. 10790.	6. 4389. 6. 0. 6. 0. 8. 15179.	0. 17046. 0. 488. 0. 17535. 0. 0.0	0.0 3421.406 0.0 1995.021 0.0 399.164 0.0 285.117 0.0 6101.508	0.0 609.520 0.0 472.220 0.0 94.444 0.0 67.460 0.0 1443.644	
AMMUL COSTS  OPERATING COSTS 1990. (K\$/YR)  NATURAL GS  PETROLEUM DISTILLATE  PETROLEUM RESIDUAL  COAL GAS  COAL DERIVED DISTILLATE  COAL DERIVED RESIDUAL  COAL  OTHER	TOTAL FUEL COST	ELECTRICITY STAND-BY CHARGE O & H COST TOTAL OFERATING COSTS	LEVELIZED OPERATING COSTS LEVELIZED FIXED CHARGES LEVELIZED ANAUAL COST COST SAVINGS COST SAVINGS		UTILITY EMISSIONS(TON/YR) SULFUR DIOXIDE NITROSEN OXIDES HYDROCERBONS PARTICULATES SUBTOTAL TOTAL	EMISSICHS SAVINGS RATIO SULFUR DIOXIDE NITROGEN OXIDES HYDROCAPBCHS PARTICULATES TOTAL SOLID MASTES

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	STRATEGY-UPITMUM	
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DEPKECIATION-SIM-OF-THE-YEAKS DIGITS METHOD	•	FIRED CHAMIE RATE IN INVESTMENT CAPITAL = 10.1% Griffial Inflation Rate= 0.0%	<u> </u>	CAPITAL CUST (TMNISANDS OF DIALLARS)	LIFE-CYCLE CUST (THURISAMUS OF DULLARS)	AMMIALIZED COSTS (THOUSANDS OF UNITARS) FIXED PURITOR	S RESCALATION NATES	HISTILLATE RESCALATION RAIL= 1.08 RESIDUAL RESCALATION RAIL= 1.04	SESCALATION RATES	CHAL GAS & WIMER RESCALATION RATER 1.04 ELECTRICITY RESCALATION RATER 1.04	TINCLATION KAIE =	TOTAL SYSTEM	tevētīžēn ammuat COSI SavinGS RATIO = 0.103	AMMUAL DUTHUF 103333-(TUNS) LEVELLZED = NERGY COSTIS/TON; •	UMUISCUIMIED PAYBACK PERIUM = 3.3	DISCOUNTED CASH FLOW RATE OF RETURN = 20.9	NIT PRESENT VALUE OF INCAEMENTAL CASH FLUM TCOGEN: WIMIS MONCHGEN; "THOUSANDS" OF "DOLLARS)"	. BASED ON ANNUAL DUTPUT OF PRUDUCT	** MAS AN UNCHANGING VALUE IN TERMS OF CUNSTANT POWER AND GROWS ARMIALLY AT THE GENERAL INFL.	UF UENT = 3, X	COST OF PREFERRED EANITY = 0. t TAX LIFE OF ST CAPITALIZATION = 30. t INVESTMEN	IN STUCK CAPITALIZ. = 70. 6 INSUR	PREFERRED STOCK CAPITALIZ. = 0. 6 INCREMENT

## TABLE VI-10 ENERGY CONSERVATION SYSTEM CHARACTERISTICS

NO. 1 CHARLNE TECHNICALISTS AN UNBINE, 615 PSTATEXTI, P. C.

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Maximum rever   mail   100,00   100,0	SMERGY CONTRACTOR LYSSER							
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500 F STEAM	0.0	0.0	0.0	0.0	
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PARTICULATE UNTWIT	0.020				
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CUST DATA AT 2.0MW (S/KW)	EQUIPMENT 11	INSTALLATION 0.0			
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3.2 PRIMANY GENERATION	24.00	0.0			
3.3 SECONGARY CONVERTER	0.0	0.0		t mytelligidisellerinisis di mississe men et elemente di mandification de mande de m	
3.4 SECUMDARY GENERATOR	0.0	0.0			
3.6 HEAT RECINEMY	\$2.00	0.0		ommente de de mande de des estado de des estados de destados de destados de la compansión de de destados de la compansión de destados de la compansión de destados de la compansión de la compan	
O G M COSTS (CENTS/NWH)	0.70				
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SPECIFIC VOLUNE (FT3/FW) SPECIFIC NEIGHT (LRS/RW)	18.00				
INSTALLATION TIME (YEARS)	•				
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300 F SIEAM	0.0	0.0250	0.0550	0.0	0.0	'G		
SOO F STEAM	0.0	0.0	0	0.0	0.0	E	***************************************	
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NO.17 AUVANTED TECHNOLOGY, GAS THAN ING. CLUSED CYCLE, COAL DER, 8.6.

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LEAN IPESS INDICATINE  O.0  O.0  O.0  O.0  O.0  O.0  O.0  O.	500 F SIFAM 700 F SIFAM IRRECUVERABLE LUSSES SENSIBLE MENT AVAILABLE	0.0	0.0900		00000	00000	
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#ECLIVERY 40.00  • (CENTS/KM+) 0.29  AT 72.0MW AREA 11.72/KM+) 1.50  WEIGHT (LNS/KW+) 24.00  WEIGHT (LNS/KW+) 0.0  NO THE (YEARS) 1.	DATA AT 4 GASIFIER 1 PHIMAY C 2 PRIMARY G 3 SECUNDARY 4 SECUNDARY	5141PAL 302.8 50.0 0.0		-05000			
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300 F STEAM	0.0150	0.0350	0.0	0.0	0.0	A)R		ia
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PARTICULATE DUTPUT	0.0							
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COST DATA AT 12.0MM (S/KW)	P EQUIPMENT	NT INSTA	NLLATION 0.0					
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3.3 SECONDARY CONVERTER	0.0		0.0		Andread and Additional control of the second	en alle de la composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition dell	embro de producti de la compansión de la	
3.4 SECUMBARY GENERATOR	0.0		•					
3.6 HEAT RECOVERY	10.00	0	0.0	7				
O G M CUSTS (CENTS/KWH)	0.27							
SPACE DATA AT 12.0MW SPECIFIC AKEA (F12/KW)	1.50							
SPECIFIC VOLUME (F)3/KW) SPECIFIC WEIGHT (LOS/KW)	0.0							
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ENERGY CONVERSION SYSTEM									•	
MAXIMIM PINGR (1W)	100.00	100.00	100.00	100.00	0.0					
NINITE POWER (RE)	0.40	0.40	0.40	0.40	0-0					
NOMINAL PINER (AN)	.2.00	12.00	12.00	12.00	0.0		1			
ENERGY FRACTION - NOMINAL SIZE	,	1		1						
ברברונלוניו וא	0664-0	0.3540	0.3590	0.3590	0.0		4-5	1		
MOT WATER	0.3950	0.4300	00000	00600	0.0					
300 F STEAM	0-0323	c. 0	0.0200	0.02.0	0.0					
500 F \$16AM	0.0	0.0	0.0	0.0	0.0					
	0.0	0.11.0	0.4210	0.0850	0.0					
TRRECOVERABLE LOSSES	0.0736	0.0688	0.0487	0.0667	0.0					
SENSJULE HEAT	0.4714	0.5722	0.5723	0.5723	0.0					
DIRECT HEAT AVAILANCE	0.0	0.0	0.0	0.2710	0.0					
CLEANLINESS INDICATOR	0-0	0.0	0.0	-	0.0					
DIR. HEAT TEMPERATUREIFT	0.0	0.0	0	1000.0	0.0				*	
HEAT SOURCE NO. = 0.										
HEAT PELFUTION FRACTION	0.0	0.0	0.0	0.0	0.0	4			-	
EMISSIONS NATAILBS/MILLION BTU) SOZ GATPUI	0.570	· · · · · · · · · · · · · · · · · · ·		: : :	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	T	Table Company of the Company		* • • • • • • • • • • • • • • • • • • •	
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3.1 PRIMARY LONVEPTER	218.50	0	10.00							
3.2 PRIMANY GENGRATON	50.0	0	0.0							
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3.6 H'AT RECHVENY	20.00	0	0.0	. 1					*	:
O C M COSTS (CENTS/FWH)	0.23									
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ð	2 DESIGN DETILIN		0.0	0.0 0.0	o o	0.0	0.0	0.0	. 0	0 0	0.0		0.0 0.0				Z		ċċ	0.0						•	•				•	
NO.31 ADVANCED TECHNILUGY, FUEL CFLL, HIGH TEMP., C		FNFRCY CONVERSION SYSIEM		FUNER THES		0.1.0	0.0300	i	LE L'ISSES 0.1358	0 - 2 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3	0.0	- Talana	HEAT REJECTION NO. # 9. HEAT REJECTION FRACTION 0.0	EMISSIUMS HATAILDS/MILLIUM BIU)	; ;	LEULAFE (N)PU) D. WASTES	COST BATA AT 100.0MW (\$/KW) FWIIPHENT	CONVERTER	SECULIDARY CUNVERTER	3.6 HEAT RECHVERY 20.00	G M CHSTS (CENTS/KMH) 0.30	SPACE DATA AT 100.0MM SPECIFIC ANTA (FIZZKM) 2.50	VILLIME (FT3/KW) 2		INSTALLATION TIME (TEARS) 3.	(YEARS)	(YEARS)	(YEARS)	(YEARS)	(YEARS)	(YEARS)	(YEARS)

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	First	HOT WATER	. 73		o.0	0.0	0.0					vi
		300 F STEAM	9		•••	0.0	0.0					si
State Help   Costs	STREAM   CLYSES   0.05450   0.00	500 F 515 AM	2	1		0.5	O.0	***************************************	Mile direction of the same districts of the same	Andrews - Andrews - Andrews		br
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No.   Hear   I kewee and washing   0.0   0.0   0.0   0.0	He	CLEANLINESS INDICATOR	0-0	0.0	0	÷	0.0					
SOMEL NO 1.  REJECTION NO 1.  REJECTION NO 1.  REJECTION FACTION  REJECTION FACTION  REJECTION FACTION  REJECTION FACTION  REJECTION FACTION  REJECTION FACTION  REJECTION FACTION  REJECTION	SOME NO 7.  **ELECTION NO 1.  **ELECTION NO 1.  **INSTITUTE RECTING 0.0570 0.0 0.0  **INSTITUTE NO 1.00  **INSTITU	DIK. HEAT TEMPERATURESF.	0.0	0.0	0.0	•	0.0	e dan i seriperine application of a displacements desire variable app				
	REJUCTION FRACTION   0.4350 0.4550 0.0 0.0 0.0     REJUCTION FRACTION   0.4350 0.4550 0.0 0.0 0.0     REJUCTION FRACTION   0.450     Output   0.500     Output   0.	JEAT SOURCE NO. = 7.										
104 8101 102 622 103 0.022 10.020 10.	(W 0.4350 0.6570 0.0 0.0  100 0.10  100 0.10  100 0.10  100 0.10  100 0.0	HEAT REJECTION NO. = 1.		1							****	
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## TABLE VI-11 INDUSTRIAL PROCESS CHARACTERISTICS - 1985

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	500 F STEAM	500.F	3.050	0.0		
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i	HY-PRIDIKT FUEL AVAILABLEITYPE=6.01	16	٥٠٥	0.0		
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	eder diddig open mangerspromme, ocupa opening opening	14.411	0.0		n
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:	MT WATER	1.0.1	0.0	0.0		
	300 F STEAM	24.7.F	1.284	0.0		
	SOU F STEAM	371.F	3.443	0.0		
	700 F STEAM		0.0	0.0		
	DIRECT HEAT(CLEANE?.00, FUEL=2.00)	Š	1.555	0.0		
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0000 PROD NIM-PROD 1.006 19 12 0 57000. 156. 365. 2.692 2.692 1.447 0.0 8.219 8.219 8.219 1.000 0.943 ٦ 0 0.000 AVERAGE THE PMAL REQUIREMENTS (MILLIUM HTU/TON) 300.F 470.F 532.F 0.0 1.0.F IVPICAL PLANT DATA TIME FRAME: 19r5. DATLY COINCIDENCE FACTOR RANGE SEASONAL VARIATION OF DAILY AVERAGE EZT DIMECT HEATIGLEAN=2.00,FUEL=0.0 ) UNEABLE PROCESS NEAT PY-PRIGUCT FIFE["NATFABLE(TYPE=0.3)" UNIT ELECTRIC CONSUMPTION(KMH/TON) PEAK FLYGIRICAL DEMANDEMM)
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		\$60000. \$270. \$45. 0.	PROD NIR-PROD		0.90 0.0		0.0 0.0	•	0.0		0.720 0.0	ĺ	0.004	TON HIGH	1.000 1.000 0.008 0.008	0.36151.007			0.632	0.04	54.300
	TYPICAL PLANT DATA	ANNUAL FLANT PRUFUK TUMITONS) PROBLET PLANT PROBLETION TONS) PROBLET IVE TAYS FLE YEAR MUN-PROBLETIONE DAYS PER YEAR	FLFCIRICAL PEULIRI WENIS	INST SECTIFIC CONSUMPTIONS KNH/TUN) PERK FILETRICAL DE MANDÉMU)	AVERACE ELECTRICAL OFMANDÍMN) LLECTRIC, LUBID FACTUR (TYPICAL DAY)	AVERAGE THER ALL PLOUINEMENTSIMILLION STUZION)	<b>4.0.4</b>				DIKICI MATULIAKETONELETONI 1400-1 USFAMLE PROCESS MAT	LABLE (TYPE=1.3)	THINT L/I		ACF FACTON RANGE TION OF DAILY AV	HATIONAL ANNIAL PEDDICTION TONS	BREAKHTHN FREETINS				# OF SIC REPRESENTED BY PRODUCT
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AVENAGE THENMAL NEGUINEMENTSIMILLION BTU/TON)	4 HTU/10N)			
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STEAM	300.F	23.780	0.0	
	500 F	0.0	0.0	
	7:00.F	0.0	0.0	
DIRECT HEATICLEANFLOOFUEL=1.00) 1	14 CO . F	4.520	0.0	
5		2.900	0.0	And the second s
AVERAGE AMMUAL SZT	AMBRITANT (CAMBRIAN & JAMES CAMBRIS) TO MARKET AND ME	0.006	0°7	AND AND THE PARTY OF THE PARTY OF THE PARTY WHICH THE RESIDENCE THE PARTY OF THE PA
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DATLY CHINCIDENCE FACTOR RANGE SEASUNAL VARIATION OF DATLY AVENAGE	E/1	1.000	1.000	
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OIL Natural gas		0 .236		
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TOTE TOTE TOTE TOTE TO THE TOTE TO THE TOTE TO THE TOTE TO THE TOTE TO THE TOTE TOT	# ST. A.	5.00.F	0.0	) <b>c</b>			
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V CHINCIDENCE   FARITION   TOTAL   LONG   1.000   1.	NIMECT OF ATTCLEARS 1.00, FUELS 1.00)	_	4.340	0.0			
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IONAL ANMIAL PREDICCTION (TONS)  L HRIAKUEWN FPACTIONS  L NO. 236  UMAL GAS  UMAL GAS  1 0 0.08 32  1 0 0.03  1 1 0 0.03  1 1 1 0 0.03  1	SEASONAL VARIATION OF DAILY AVERAGE	£/1	0.011	0.011			
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USAL GAS FR  0.03 1.4 F. SIC. REPRESENTED BY PRODUCT 54.300	_		60.0				
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		455000 1356. 365. 0.	PROD N (M-PROD		1	0.950	And the same of th	0.0	0.0	0.0	7.528	.4.960	0.0	27.480	0.002	<b>M</b> 01	000-1				150.0	0.042	038.0	75 0 ° 0
TIME FRAME: 1970.	TYPICAL PLANE DATA	AMMUAL FLANT PROHUCTION TONS PANLY PLANT PROHUCTION TON PROHUCTION TONS PER YEAR WIN-PROPERTY PER YEAR	ILFCFFICAL REQUIREMENTS	UNIT FLECTRIC CONSUMPTION(KWH/TON)	PLAK (L:CTR ICAL DEPANDINA)	AVERALA: CLELIMICAL DENAMNIANI LLFCIMIC LDAU FACIUM (IVPICAL DAV)	AVERAGE THEMAL REQUIREMENTSTATELETON BTUZION)	WAT CR.	30. F STFAM 300.F		700 F STEAM	•••	USEAALE PROCESS HEAT 0.F	BY-PACHICT FUEL AVAILABLE (TYPE=1.0)	AVEHAGE ANNUAL EZT		DATLY COINCIDENCE FACTOR RANGE	SEASOMAL VARIATION OF DAILY AVERAGE E/T	THE PROPERTY OF THE PROPERTY O	FILE BREAKING FRACTIONS		OIL NATIMAL GAS	TAILE THE TAIL THE THE TAIL THE TAIL THE TAIL THE TAIL THE TAIL THE TAIL THE TAIL TH	OTHER

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TYPICAL PLANI DATA			Date of
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FLECTRES LUAD FACTIN-STYPICAL DAY)	0.456	0.0	-
AVERAGE THERMAL HIGHIRLAFINTSIMILLIUM NTUZTOM)			
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F STEAM	0.0	0.0	_
ICLEAN=1.00,FU:L=U.0 ) 2	56.020	0.00	
-	25.000	0.0	1
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hilly SIL 286" (HITLENE (MAPTHA PLANT) THE FRANE: 2006. TYPICAL PLANT DATA	AMBUAL PLANT PROBUCTION(TIMS) DAILY PLANT PROBUCTION(TONS) PROBUCTIVE LAYS PLR YEAR MON-PROBUCTIVE OLYS PER YEAR	FLECTALCAL MEDITIFIEMENTS	UNIT ELECTRIC CONSUMPTIMENMEZTON) PEAR ELECTRICAL DENAMOTMA AVERAGE ELECTRICAL DENAMOTMA	ELECTRIT, LUAD FACTIR(IVPICAL DAV)  AVERAGE THEMAL PERUTREMENTSIMILLION BTUZTON)	HATTR 300 F STEAM 340.F	HIEL=0.0 )	PY-PRODUK T FUEL AVAILABLE TYPE=1.01 AVERAGE ANNUAL 1/T	
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THIN-PEHRICTIVE DAYS FER VEAR		38.						te
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PEAK LLECTRICAL DE MANDIMUS		30.765	0.0					si
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ILECTALC LUAD FACTORITYPICAL DAYS		0.450	O. G					n
AVERAGE THEMAL REGUIREMENTSCALLLIUM BTU/B	IN NTU/HAMALL			o entre di entre minerale de destata de la companie			an gladjenn administrative Arm Arm	the state of the s
MAT WATER	140.6	0.0	0.0					
YOU F STFAM	3: 0.F	0.0	0.0					
SOU F STEAM		30.0	0.0					
703 F STRAM	780.F	0.0	0.0					
DIMECT HEATICIFAMEZ. ON, FUEL = 0.0 )	ř	0.424	0.0					
USE ARLE PROCESS MEAT	n. 0	٦.0	0.0					
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AVERACE AMMUAL E/T		0.027	0.0	Van-denine mellijke indikterenet melli den gelade, den entelleaneaten mellijke indikteren en en de d				
		<b>7</b> 01	HJ GH					
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COAL		0.616
HATIMAL GAS		0.4.0
OTHER OTHER		0.136 0.0
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AVERAGE ELECTRICAL DENANDÍMAS LLECTRIC LIAD FACTURITYPICAL DAYS		33.70v 0.950	0.0	n
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TOTAL TANKS	1.0.F	0.0	9.70	-
T <		•	0.0	
STEAM		0.00	0.0	
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NATIONAL ANNUAL PRODUCTION (BARRELS)	AMERICAN AND AND AND AND AND AND AND AND AND A	0.614	0.414 % 10	
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HELETRIC LINUSIDATION FRANCES  11CIRCLE DEMANDEMENT  AGE ELECTRICAL DEMANDEMENT  FRIC LINUS FACINATIVE CAL DAY)  AGE THE WHAL BY UNIRFMENTS (MILLIN MIU/MARREL)  AGE THE WHAL BY UNIRFMENTS (MILLIN MIU/MARREL)  AGE THE WHAL BY UNIRFMENTS (MILLIN MIU/MARREL)  AGE THE WHAL BY UNIRFMENTS (MILLIN MIU/MARREL)  AGE THE WHAL BY UNIRFMENTS (MILLIAN MIU/MARREL)  AGE ANNAMAL FACTOR NANGE  AGE ANNAMAL FACTOR NANGE  AGE ANNAMAL VARIATION 19 FORILT AVERAGE E/T		ORIGO A
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TYPICAL PLANT DATA	414		
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LECTRICAL SCOURLMENTS	¥.	0.0	PROU NEW-PROO
UNIT FLECTRIC CONSUMPTIONIKMH/TON) PLAR ELECTRICAL DEMANDÍMA)	3-9-0 2-0-0 1-0-0-1		192 .n 7.618
AVERAGE ELECTRICAL DEMANNIAM) FLECTRIC LOAD FACTORITYPICAL DAY)	. 71	14.390	7.618 1.000
AVENAGE THEAMAL RECUIRENENTSIMILLION ISTUZION)	LTU/TON)		
HOT WATER	140.F	0.0	0.0
T STEAM			1.481
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HY-PRIDICT FUEL AVAILABLE TYPE=0.01			0.0
AVENAGE ANNUAL FZT	<b>.</b> c	.376	0.443
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HATLY CUTNCTULNCT FACTOR RANGE SEASONAL VAPLATION OF DAILY AVENAGE EZT		1.000 0.37e	1.000 0.37£
NATIONAL ANNIJAL PRINIKTION (TONS)		0.496 (1.407	(1+07
FULL BREAKDOWN FRACTIONS COAL		917.0	
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NATURAL GAS OTHER		000	
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FLECTHICAL PROBLEMENTS		PROD NUN-PROD	LW-P R(M)			D
UNIT ELECTRIC CONSUMPTIONIKWH/TON) PEAR ELICTRICAL DEMAND(MA)		756.8	171.8 6.819		-	visio
AVERAGE FLECTRICAL DEMANDEMM) LLICTRIC LUAD FACTORITYPICAL DAYI	A Laboratoria dell'Arte de	12.160	6.419 1.000			m
AVERAGE INFRMAL RECUIREMENTSIMILLION BTU/TON	bTU/TON)				A management of the control of the c	
WATER	140.6	0.0	0.0			
SOU F STEAM	406 .f	0°0	1.325			
:	760.F	0.0	0.0			
OTRECT HEAT (CLEAN=1,30,FUEL=1,03)	T. 0	0.0	0.0			
NY-PRIBUCT FUEL AVAILABLE (TYPE=6.7)		0.0	0.0			
AVERAGI ANNUAL FZT		0.376	0.443	de tre designed de se constante de servicio de servicio de servicio de servicio de se constante de servicio de		
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DAILY COINCIDENCE FACTOR RANGE Stasonal variation of Daily Average e	1/1	1.000	1.000 0.37¢			
NATICHAL ANNIAL PRODUCTION (TONS)		0.550 rE+07	rE+07			
FUEL BREAKBOWN FRACTIONS						
COAL		0.716				
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TIME FRAME: 2000. TYPICAL PLANT DATA	ANNIIAL PLANT PRODUCTIONITONS) DATLY PLANT PRODUCTIONITONS) PRODUCTIVE HAYS FER YEAR NON-PRODUCTIVE DAYS PER YFAR	ELECTRICAL REQUIREMENTS	UNIT ELECTRIC CONSUMPTION(KWH/TON) PEAK ELECTRICAL DEMAND(MM)	AVERAGE ELECTRICAL DEHAMO(MW) ELECTRIC LUAD FACIOR(TYPICAL DAY)	AVERAGE THERMAL REQUIREMENTS IMILLEON INTU/TON)	3 07 1 1011	F STEAM	u	(CLEAN: 1. 60.FUEL=1.06)	BY-PRIDIKT FUFE AVAILABLE! TYPE=0.0)	AVERACE ANNIAL EZT		DATLY CUINCIDENCE FACTOR RANGE SEASONAL VARIATION OF DAILY AVERAGE E/I		NATIONAL ANNIAL PPODUCTION (TONS)	BRFAKDOWN FRACTIONS	COAL	DIC Natural Gas	OTHER	# OF SIC REPRESENTED BY PRODUCT	•	•	•		

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ELECTRICAL NEGUINEMINS	DI MIN-PRIM
	0.0
AVERAGE ELECTPICAL DEMAND(MW) LLECTRIC LOAD FACTIR (TYPICAL DAY)	0.0
AVIRAGE THEPMAL KEQUIREMENTS (MILLION BTU/TOH)	
HOT WATER 300 F STEAM 300 F 500 F 500 F	0.0 0.0
F STSAM CT 11 AT (CLFAN=2,00,FUEL=2,00) 2	0.0 0.0 9.400 0.0 1.400 0.0
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AVEKAGE ANNUAL EZT	0.113 0.0
	LOW HIGH
DATLY CUTING THENGE FACTOR KANGE SLASIONAL VARIATION OF DATLY AVERAGE EXT	1.063 1.006
NATIONAL ANNUAL PRODUCTION (TONS)	0 - 1 36 0£ +08
FUEL BREAKDOWN FRACTIONS COAL OIL	0.0
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700.F 2800.F 1000.F 1.000 L 1.000 L E/T 1.000 L 0.136.E 0.136.E 0.193 0.607 0.00	703.F 0.0 0.0 24.0.0 1.000 1.000  2.113 0.0  2.113 0.113  2.13 0.113  2.1567i.00  0.193  0.193  0.100.000	700.F 0.0 2800.F 8.554 0 1000.F 1.400 0 0.113 0 1.000 1 E/T 0.113 0
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		•		<u> </u>	DAILY PLANT PHIMDLILDN(TUNS) PHODUCTIVE DAYS PER YEAR	NIN-FRUIDUCTIVE HAYS PER V	FLFCTHICAL NFOUNEFWINTS	5	PEAK FLECTRICAL DEMANDIMA) AVERAGE ELECTRICAL DEMANDIMA)	ELECTRIC LNAD FACTURITYPICAL DAY)	AVSRAGE THEPHAL REQUIRENENTS (MILLION NTU/10	1		:		USEAHLE PROCESS NEAT	ev-product fuel available (TYPE=6.0)	AVEHAGE ANNUAL E/T		DATLY CHINCIDENCE FACTOR NANGE	SEASONAL VARIATION OF DAILY AVERAGE	NATIONAL ANMIAL PRODUCTION (TOMS)	BREAKDINN FFACTIONS	•			T OF SIG REPRESENTED BY PRODUCT		
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	1656/400. 4521. 365.	PROG NUN-PROD	110.0 0.0	20.719 0.0			0.0				0.107 0.0	HOM MOT	1.000 1.000	0.524 ()E +0.8			0.020	0.0	43.300		
INE FRANE: 2005. IVPICAL PLANI DATA	PLANT PROBUCTION (TIMS) LANT PROBUCTION (TOWS) THE DAYS PLIP YEAR HINCTIVE GAYS PER YEAR	I WENTS	SUMPTION (KMM/TON)	IL DEMANDINA) HAR ITYPICAL DAVI	AVERAGE THERMAL REGISTEMENTS (MILLION 9TU/10N)	1.00.1	7.00 7.00 7.00		J=2.00,fUEL=7.00) 2900.F	BY-PAINACT FUEL AVAILABLE (TYPE=0.0)			SEASONAL VARIATION OF DAILY AVERAGE E/T	KÜDUC FLUN İ 10MS I	ACT IONS				SIC REPRESENTED BY PRODUCT		
	ANNUAL PLANT PROBUCTION (TONS) DALLY PLANT PROBUCTION (TONS) PROBUCTIVE DAYS PEP YEAR TAIN-PPHINCTIVE GAYS PER YEAR	FLECTHICAL REQUIREMENTS	UNIT FLECTRIC CONSUMPTIONIRMM/TON) PEAR FLECTRICAL DEMANDEMN	AVERAGE ELECTRICAL DEMANDIAM) PLECTRIC LOAD FACIOR (TYPICAL DAY)	AVFRAGE THERMAL REGA	3	300 F STEAM	700 F STFAM	CHRECT REATICLEANEZ.00.FUEL=7.00)	BY-PARTICE FUEL A	AVERAGE ANNUAL F/I		GATLY CHINCIDENCE SEASONAL VARIATION	- HATIONAL ANMIAI PREDUCTION TOMES	FUEL HERAKDOWN FRACTIONS	נט <b>יו</b> ר סיי:	NATURAL GAS		t OF SIC REPRESFI		

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TVPICAL PLANT DATA	DATA	AND AND THE PARTY OF A SECOND			wer
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UNIT LLICTRIC CONSUMPTION(KWHZTON)		326.8	0.0		/is
PLAK "L"CINICAL DFMAND(MA)		233.191	0.0		io
AVERAGE TECHNICAL DEMANDEMD FEEGFALL LOAD FACTORITYPICAL DAVI		0.8.0	0.0		n
AVERAGE THERMAL PECUIREMENISIMILLION PTU/TON	N PTU/TON)				
HOT WATER	1,0,4	0.0	0.0		
•	3.00.F	0.0	0.0		
T CIEAN	5.00 F	1.424	0.0		
T STEAM	700.F	0.0	0.0	gate-department define of versaleminate interest is the value of the state of the s	
•	3000 F	25.890	0.0		
USEANLE PROCESS HEAT	**0	9.0	0.0		
HY-PRIMING T FIVE TAVAILANCE TYPE = 1.0)		6.147	0.0		
AVERAGE ANNIMAL E/1		0.037	0.0		
		761	HGH		
		30 <b>0. I</b>	1.000		
SEASONAL VANTATION OF DAILY AVERAGE	E/T	7r0.0	0.037		
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	Andrews des services de la companyation de la compa	760.0			
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NO.23 SIC 1912 INFERALED STEEL MILL	TIME FRAME: 1985.	AMINAL PLANT PRIDUCTION (IONS)		RUN-PRUINCTIVE DAYS PER YEAR	ELECTRICAL REGULRERENTS	INIT ELECTRIC CHRISHPTINKKWH/TIM) PEAK SEETRICAL DEWINDOW()	AVERACE ELECTRICAL DEPARTMENT AVERACE LIAND FACTOR (TYPICAL DAY)

Power Systems Division

AVERACE THIRMAL REQUIREMENTSIMILLION DIV/TOW)  10T WATER  500 F STEAN  500 F STEAN  500 F 512 AN  500 F 512 AN  500 F 512 AN  500 F 600 B 500  500 F 600 B 500  500 F 600 B 500  500 F 600 B 500  500 F 600 B 500  500 F 600 B 500  500 F 600 B 500  500 F 60	ELECTATE LUAD FACTURITYPICAL DAY)	0.1.0		0.0
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1.000 1.000 1.000 0.017 0.0453 0.075 0.075 0.095	AVERAGE ANNUAL E/T	9.0		0.0
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0.05 0.07 0.09 0.00	DATLY CHINCIDENCE FACTOR RANGE CO.			0.00.0
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	TIPICAL PLANI BATA	KI TONS) Tons) AR R YEAR	:	3	ANDIMAS VPICAL DAVS	AVERAGE THEFMAL RECUIREMENTSINILLIAM BIUJIN			•	.FUEL=7.001		AVAILABLE(TYPE=1.0)	*		MAILY CHINCIDING! FACTOR RANGE		TION(TONS)	\$ P						•
		AMMILL FLANT PPOUNTIUMITONS) PROLUCTIVE TAYS PER YEAR WON-PROUNTIVE TAYS PER YEAR	ELECTFICAL REUNTREMENTS		AVERACI FLECTRICAL DENANDIMA) ELECTRIC LUAD FACTUR(TYPICAL DAY)	THAL BECUTA	The state of the s			MARCI HEATICLEAN= 3.00, FUEL= 7.001	CLSS HEAT	FUEL AVAILA	IAL EZI		UALLY CHINCIDENCE FACTOR NAMES		NATIONAL AMOUAL PERDUCTION(TUNS)	BREAKDOWN FRACTIONS				SIC REPRESENTED NY PAGDACT		
	ţ	AL CLANI LY PLANT LY PLANT PROUNCTI	CIPICAL N	UNIT FLICTRIC	RACE FLEC	PAGE THEA	3	DOG F STEAM		FCI IFATI	USTANLT PRUCESS HEAT	PACIDONET +	AVERALE AMMIAL EZE		LY COINCI	: -	INNAL AND	FUEL BREAKDO	3	DINER OF SA		T OF SIC RE		

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Systems Division FCR-1333 Power MIN PROD . . . . 1.000 3 0.7414 .07 00000 9 20.00 80.00 45.184 98.411 0.650 2000 0.347 3 0.347 AVERAGE THERMAL REQUIREMENTSINILLINN BTU/1000) 3:0°F 7:0°F 30:0°F 0.f 4110 TIME FRAME : 1-76. 7 NIRECT HEATICLEAN=3.00,FUEL=0.0 1 3 USEAULF PRUCESS HEAT BY-PAINDICT FUEL AVAILABLETTYPE=0.07 MATELY CHINCIDENCE FACTOR RANGE SEASONAL VARIATION OF DAILY AVERAGE TYPICAL PLANT UNIT FL'ETRIC CONSUMPTIONIRMATION)
PEAK TLIETRICAL DEMANDINA)
AVERAGE ELECTRICAL DEMANDINA)
ELECTRIC LOAD FACTUR HYPICAL DAY) HATTOMAL ANNIAL PRODUCTION (TONS) TOF SIC REPRESENTED BY PRODUCT AMMUAL ILAMI PHINDETI,MITIMSI IMILY PLAMI PHINDECTITURTONSI PHINDICTIVE RAYS PER YEAR RIM-PHINDECTIVE DAYS PER YEAR FUEL PREAKONAM FRACTIONS COAL FLECTFICAL PECHIFICAENTS AVERAGE AMMINE EZT HOT WATER F STEAM SOC F STEAM MATURAL GAS 303 :522-

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Division 3 0.34.0 7100 NIN-1900 0.976te.07 9.0 210 C 28.60 1.000 400 C.347 3 ... 35.700 AVIRAGE INERGAL DI GUIRFHENTSIMILLIUM BIU/IGN) 1.00 × 3. SEASINAL VARIATION DE DAILY AVERAGE EZT STFICAL PLANS DAIA TIME FRAME 1915. INTICT PERFECTIONS NO. FUELSO. 0 INCAMELE PROCESS HEAT PROCESS HEAT PROCESS HEAT PROCESS HEAT PROCESS. NO. 2 PR THE TRICTAGE CONSUMPTIONISMA/TON)
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LLECTRIC LIMB FACTOR (TYPICAL DAT) MAT INNAL" ANNIAL PPODUCTION(TOHS) AMBRICA SEC 3321 CRA BROW FUNDERER T OF SIC REPRESENTED BY PRODUCT APPRIATE PLANT PROPUETION TOWNS PROPUETY PLANT PROPUETY TOWN THE APPRICATOR TEAS ARE WENTER FOR THE APPRIMATE THE FORMS PER YEAR FIRE BACARDIAN FRACTIPMS FLICINICAL MODINIMENTS AVENALE AMMINE E/I MATURAL GAS 103 F STEAM Ę

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TYPICAL PLANT DATA	ANNUAL FLANT PRODUCTION (TONS) DATLY PLANT PRIMICTION (TONS) PRODUCTIVE CAYS FFE YEAR NOW-PRODUCTIVE DAYS PER YEAR	PLECTATICAL REGULATION NTS	UNIT ELFCTRIC CONSUMPTIONIKHM/TON) PEAR ELFCTRICAL DEMANDIM)	AVERAGE ELECTRICAL DEMANDÍMU) FLELTRIF LOAD FACTORITYPICAL DAY)	AVERAGE THERMAL REQUIREMENTS (MILLION DTU/TON)	ATFR	EVIL 2 H		-	LABLE (TYPE = 0.0)	AVEHAGE ANNUAL EZT		DATLY COINCIDENCE FACTOR RANGE SEASONAL VARIATION OF DAILY AVERAGE EXT	NATIONAL ANNIAL FRONKTION (JONS)	COAL	UTL Natural gas	OTHER	T OF SIC REPRESENTED BY PRODUCT		

Compared to the property invertines   1960	TVPICAL PLANT DATA	F DATA			
THE LATE CONSTRUCTION   2432.0 0.0	ANGUAL PLANT PRODUCTION(TONS) DATLY PLANT PRODUCTION(TONS) PRODUCTIVE DAYS PER YEAR MIN-PRIDIXICTIVE DAYS PLR YEAR		0 64 63 0 0		
HICTORICAL CONSUMENT   133.6 0.0   HICTORICAL DAMPINATION   15.75.0 0.0   GETTORICAL DAMPINATION   0.590 0.0   GETTORICAL DAMPINATION   0.590 0.0   GETTORICAL DAMPINATION   0.500 0.0   HICTORICAL DAMPINATION   0.000 0.0   STAM   0.000 0.0	•		i	10N - P KOU	
CONTINUES   CONT	HE LECTRIC		2432.0	. 0.0	
THE HAVEL REQUIREMENTS MILLION BILLTONIN  ALER  STEAN  STE	AVERAGE ELECTRICAL DEMANDÉMN)		006.0	0.0	
1   10   10   10   10   10   10   10	AVERAGE THERMAL REQUIREMENTS/MILLIG	N BTU/TON		en en en en en en en en en en en en en e	
STEAN 3-6-F 20-0 0-0  STEAN 3-6-F 20-0 0-0  STEAN 3-6-F 20-0 0-0  STEAN 3-6-F 20-0 0-0  AT FILLEANZ-CONFUEL-0-0 ) 0-F 0.0  AT GAS 4 GAS 4 AT AND AT AND AT AND AT GAS 4 GAS 4 GAS 4 GAS 4 GAS 4 GAS 5 GAS 4 GAS 5 GAS 6	3	1.031	0.0	0.0	
1	4 4	3.00 K	0.0	0.0	
TE ANHUAL F/T  TE ANHUAL F/T  TE ANHUAL F/T  CUINCIDING FACTION FRAGE  TO 0.0  CUINCIDING FACTION FRAGE  TO 0.336  TO 0.0  TO NIGH  CUINCIDING FACTION FRAGE  TO 0.16276:07  TO 0.16276:07  TO 0.16276:07  TO 0.16276:07  TO 0.16276:07  TO 0.16276:07  TO 0.0	;	700.F	0.0		のできた。
CUINCIDENCE FACTUR RANGE  CUINCIDENCE FACTUR RANGE  LOW HIGH  CUINCIDENCE FACTUR RANGE  LOOD 1.000  MAI VARIATION OF DAILY AVERAGE E/T  EMEAGNAN FRACTIONS  AL GAS  STC REPRESENTED AY PRODUCT  1.000		A.0	0.0	0.0	
TE ANHUAL EVIT  CUINCIDENCE FACTUR RANGE  CUINCIDENCE FACTUR RANGE  L.000 1.000  MAL ANHUAL PRODUCTION (TONS)  L.000  AL GAS  SIC REPRESENTED AV PRODUCT  1.000	EY-PRUDUCT FUEL AVAILABLE(TYPE=0.0)	Ì	0.0	0.0	
LOW MIGH  OUTDINGE FACTOR RANGE  I 1.000 1.000  NAL WARIATION OF DAILY AVEHAGE E/T 6.336  NAL ANMUAL PRODUCTION TONS)  O 1.000  AL GAS  SIC REPRESENTED BY PRODUCT  1.000		And the second s	m.	0.0	
CUINCIDENCE FACTOR RANGE  1.000 1.000  1.01 VARIATION OF DAILY AVERAGE E/T  6.18276-07  6.00  41 GAS  1.000  5.00  5.00  1.000			701	MI GM	
BAREAKONMA FRACTIONS  10.0  10.0  10.0  10.0  10.0  10.0  10.0  10.0  10.0  10.0	DATLY CUINCIDENCE FACTOR RANGE SEASONAL VARIATION OF DAILY AVERAGE	E/1	1.000	1.000 0.336	
AL GAS AL GAS AL GAS 3,000 6.0 0.0 SIC REPRESENTED BY PRODUCT 1,000	NATIONAL ANNUAL PRODUCTION (TONS)		0.16	76-07	
0.0 0.0 0.0 STC REPRESENTED AV PRODUCT 1.000					
AL GAS  0.0  0.0  STC REPRESENTED AV PRODUCT  1.000	יופאר		6		・ ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・
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AMMUAL PLANT PRIDUCTION (TONS)	•	96.060			er S
DATLY PLANT PRODUCTION TO PROUNCTIVE DAYS PER YEAR		365.			yace
NIN-PROINCLIVE DATS FER TEAK					
PLECTRICAL REGISTRIMENTS	The state of the s	PROD	PROD NEW-PRIDG		
UNIT ELECTRIC CONSIMPTIONIKHIZTON	HZTONI	2432.0	0.00		V 131
AVERA ELECTRICAL OCTANDITAL AVERAGE FIECTRICAL OFRANDIAN		206.6	0.0		
ELECTAIL LUAN FACTOR (TYPICAL DAY)	DAYI	006*0	0.0		
AVERAGE THERMAL RECUIREMENTS (MILLION BTU/10	(MILLION BTU/TON)	des representations of the armites and desired			
HOT WATER	140.6	0.0	0.0		
300 F STEAM	3.10 F	0.0	e.0		
STEAM	338.4	24.100	0.0		-
700 F STEAM		0.0	0.0		
DIMECT HEATICLEAN= 2.00, FUEL=0.0 )		0.0	0.0		
CSFASIL PRINCESS BIRAL	1.0	0.0		بجسادة والمتاريخ والمساحدين والمساورة والمساورة والمساورة والمساورة والمتارك والمتارك والمتارك والمتارك	
RY-PRINCET FUEL AVAILABLE LYPERO OF	PE=0.01	0.0	0.0		
AVERAGE ANNUAL EZT		0.336	0.0		
		A0 1	HIGH		
DAILY COINCIDENCE FACTOR RANGE		2000.	1.000		
SEASONAL VARIATION OF DAILY AVENAGE EVE	AVERAGE E/T	0.136	0.336		
NATIONAL ANNIAL PRIDUCTION (TONS)	ONS	7.5.0	0.270GE+07		
FUEL BREAKDOWN FRACTIONS					
COAL	MANAGEMENT OF THE COURSE OF TH	0.0	and the second state of the second second second second second second second second second second second second	rago-venige difusionisticibusitissis en arragorispissus er	
OIL Natural Gas		0.0			
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TYPICAL PLANT DATA		
ANNUAL PLANT PRODUCTION(TONS) FAILY PLANT PRODUCTION(TONS) PRIPHICTIVE DAYS PER YEAR RON-PRODUCTIVE DAYS PER YEAR	365.	Systems
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MINIT FLECTRIC CINSIMPTIMICAMITIME		/isit
AVERAGE ELECTRICAL DEMANDÍNN)  FLECTRIC LIAD FACTIRITYPICAL DAY)	0.900	0.0 0.0
AVIRAGE THEPMAL PLOUINEMENTSCHILLION HTU/TON!	0	
9. 07 t	0.0	0.0
T 711-28		0.0
F STEAM 3310-F	005.11	0.0 6.0
CLEAN=2.00.FUEL=0.0.)		0.0
	1	0 0 0
		0.0
AVEHALE ANNIAL EZT	0.647	0.0
	<b>201</b>	E GH
HALLY COINCIDENCE FACTOR RANGE	1.000	1.000
SEASONAL VAPIATION OF DAILY AVENALE EXT	F 000 2	
PRODUCTIONS	0.42006+01	K+01
FULL REPRODUM FRACTIONS	0.0	を出席、中の最近地で、最近地で関するでは、現代では、「ない」では、「本地で、ない」と思うない。 日本のは、日本のは、日本のは、日本のは、日本のは、日本のは、日本のは、日本のは、
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4 DE SIC REPRESENTED NY PRODUCT	1.000	
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11.1	ANRUAL PLANT PHIBBLETION (AUTOS) DATLY PLANT PRODUCTION (AUTOS) PHOBUCTIVE GAYS PLW YEAR NUM-PROBICTIVE GAYS PER YEAR		606. 260. 105.			• Systems
ANGE EVI  1.000 1.000  1.000 1.000  1.000 0.00  1.000	PLFCTRICAL REQUIREMENTS	Ξ.		RCD		DI
11.00 HTU/AUTO1  11.00 0.0 0.0 0.0  11.00 0.0 0.0 0.0  11.00 0.10 0.0  11.00 0.1251.00  11.00 0.1251.00  11.00 0.1251.00  12.00 0.1251.00  13.00 0.1251.00  13.00 0.1251.00  13.00 0.1251.00  13.00 0.1251.00  13.00 0.1251.00  14.00 0.1251.00  15.00 0.1251.00  16.00 0.1051.00  17.00 0.1051.00  18.	UNIT TELECTRIC CONSUMPTION(KWH/AUTO)	9 6	4	٠.		/isic
AAZER  WATER  WATER  130.F  5.01  6.00  6.00  150.F  5.10  1.00  1	AVERAGE ELECTRICAL DEMANDIANS ELECTRIC LIAD FACTIR (TYPICAL DAY)	0	7 -	25		<b>an</b>
100   100	AVERAGE THERMAL ACQUIREMENTS(MILLION B'	TU/AUTO)		· den com en mage vene		
STEAM   STEAM   STORT   STEAM   STORT   STEAM   STORT   STEAM   STORT   STEAM   STORT   STEAM   STORT   STEAM   STORT   STOR	WATER		İ			
F. STEWN   C. O. FUEL=1.00   730; F. O. O. O. O. O. O. O. O. O. O. O. O. O.	F STEAM			36		
	F STRAM		1	The state of the s	- 1990年 1990年 1990年 1990年 1990年 1990年 - 1	
C.   Mailant Elife (MailantellyPreso)   C.   C.   C.   C.   C.   C.   C.	Š			15		
17 CHINCIPME FACTION NAME  19 CHINCIPME FACTION NAME  19 CHINCIPME FACTION NAME  19 SHALL VARIATION OF DAILY AVERAGE E/T  19 SHALL VARIATION OF DAILY AVERAGE E/T  19 SHALL VARIATION OF DAILY AVERAGE E/T  19 SHALL VARIATION OF DAILY AVERAGE E/T  19 SHALL VARIATION OF DAILY AVERAGE E/T  19 SHALL VARIATION OF DAILY AVERAGE E/T  19 SHALL VARIATION OF PRODUCT  100.000	_			Andreas de la company de la co		
CONTINUE FACTUR NAME   1,000 1,000   1,000	,		6	34		
SURAL VARIATION OF DAILY AVERAGE EVT 3.300 0.300  SURAL VARIATION OF DAILY AVERAGE EVT 3.300 0.300  The state annual pardictions 0.125  UPAL GAS  F SIC REPRESENTED BY PRODUCT 100.000		, extended and the control of the co	!	НЭ		
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IONAL ANNUAL PARITIONS  O.244  O.123  O.124  O.125  O.125  O.105  ER  ER  F SIC REPRESENTED BY PRODUCT  IOO.000					RIGI F PO	
UPAL GAS  UPAL GAS  UPAL GAS  UPAL GAS  UPAL GAS  F. SI C. REPRESENTED BY PRODUCT  100.000	NATIONAL ANNUAL PAROLECTION (AUTOS)	AND A SECOND STATE OF THE PARTY	0.12354.0	The second statement of the se	NAL OR	
REPRESENTED BY PRODUCT			0.244	P. P. C. State Control of Control	PAGUAL	
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	SIC REPRESENTED BY PRODUCT		000.00			
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TIME FRAME: 1	19:15.	:		
TYPICAL PLANT DATA	DATA	Aggin of the Residence of the con-		'owe
ANNIAL PLANT PRODUCTHINIAUTUS) DATLY PLANT PRODUCTION (AUTOS) PROBUCTIVE UNYS PFK YEAK NIM-PROBUCTIVE DAYS PFK YEAK		210000. 260. 105.		er System
FLECTME.AL MEQUIMEM.NTS		PROU NON-PRIN	IW-PRIE	s D
(01/14/	!	561.1	50.4 4.196	ivisi
AVERACE ELECTRICAL DEMANDIAM) FLECTPIC LOAD FACTOR(TYPICAL DAY)		16.862 6.900	4.196 1.000	en
AVERAGE THERMAL REQUIREMENTS (MILLION NTV/	N IsTU/AUTO)			
	1.0.F	0.0	0.0	
	300.6	0.0	0.0	
200 F STEAM	335.F	317.0	0.38	
00,FUEL=1.00) 3	3000.F	1.659	\$6.00 1.00	
USFABLE PRINCESS HEAT BY-PREDUCT FUEL AVAILABLETTYPERINGS	0.F	0.0	0.0	
AVEPAUF ANNIAL E/T		0.360	0.334	
		NOI	HI GI	
NCIDENCE FACTOR RA		0.300	1.000 0.30u	
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